UNIV.OF
TORONTO
LIBRARY

Med
A

THE
AMERICAN

Psychiatry

JOURNAL OF INSANITY

PUBLISHED UNDER THE AUSPICES OF
THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION

EDITORS
Henry M. Hurd, M. D.
G. Alder Blumer, M. D.
Edward N. Brush, M. D.
J. Montgomery Mosher, M. D.
Charles K. Clarke, M. D.

VOLUME LXXII

"The care of the human mind is the most noble branch of medicine."—GROTIUS

BALTIMORE
THE JOHNS HOPKINS PRESS
1915–1916

398708
10.12.41

The Lord Baltimore Press
BALTIMORE, MD., U. S. A.

RC
321
A52
v.72
cop.2

CONTENTS OF VOLUME LXXII

July, 1915.

I. Presidential Address. On the Relation of Psychiatry to the State. *Samuel E. Smith* 1

II. Annual Address. Publicity and the Public Mind. *Douglas Southall Freeman* 17

III. Recent Extension of Out-Patiet Work in Massachusetts State Hospitals for the Insane and Feeble-Minded. *L. Vernon Briggs* and *A. Warren Stearns* 35

IV. Some Neglected Phases of Immigration in Relation to Insanity. *A. J. Rosanoff* 45

V. Optic Neuritis and Color Fields in the Diagnosis of Syphilis, Neurasthenia, Hyperthyroidism, Dementia Præcox, Manic Depressive Insanity and Third Generation Syphilis. *Hayward G. Thomas* 59

VI. Syphilis as the Etiological Factor in the So-called Functional Neuroses and Psychoses. *Jau Don Ball* 93

VII. Thalmic Gliosis in Dementia Præcox. *Mary Elizabeth Morse* 103

VIII. The Treatment of Paresis and Tabes Dorsalis by Salvarsanized Serum. *Henry A. Cotton* 125

IX. Proceedings of Societies:
American Medico-Psychological Association—Proceedings of the Seventy-first Annual Meeting 159

X. Notes and Comment:
Sir Thomas S. Clouston.—Feeble-Minded Citizens of Pennsylvania.—The Seventy-first Annual Meeting of the Association.—Institution Libraries League 207-214

XI. Book Reviews:
Feeble-Mindedness: Its Causes and Consequences. By Herbert Goddard, Ph. D., Director of the Research Laboratory of The Training School at Vineland, N. J., for Feeble-Minded Girls and Boys. (New York: The MacMillan Company, 1914). The Story of Bethlehem Hospital from its Foundation in 1247. By Edward Geoffrey O'Donoghue, Chaplain in the Hospital. (New York: E. P. Dutton & Co., 1915) 216-221

October, 1915.

I. A Study of Eugenic Forces. Particularly of Social Conditions Which Bring About the Segregation of Neuropathic Persons in Special Institutions. *A. J. Rosanoff* 223

II. A CASE OF RETRO-ANTEROGRADE AMNESIA FOLLOWING GAS POISONING. *Philip Coombs Knapp* 259
III. A STUDY OF SOCIAL MALADJUSTMENT. *H. B. Moyle* 275
IV. PARAPHRENIA EROTICA. A CONTRIBUTION TO THE STUDY OF SYNTHETIC PSYCHIATRY. *Morris J. Karpas* 291
V. ON BOOKS AND READING. OUTLINE OF A COURSE OF LECTURES FOR NURSES IN HOSPITALS. *Edith Kathleen Jones* 297
VI. THE PSYCHOSES OF THE HIGH IMBECILE. *Henry J. Berkley* .. 305
VII. SOME OF THE MORE RECENT PROBLEMS CONNECTED WITH THE STATE CARE OF THE INSANE. *James V. May* 315
VIII. THE VALUE OF ROUTINE LABORATORY WORK IN PSYCHIATRY *Paul G. Weston* and *Ira Darling* 325
IX. INSTITUTIONAL STASIS. *H. C. Eyman* 331
X. THE THERAPEUTIC AND ECONOMIC VALUE OF DIVERSIONAL OCCUPATION. *Britton D. Evans* and *Frank M. Mickels* 337
XI. OBSERVATIONS ON THE VOICE IN TABES—A VOICE SIGN. *Walter B. Swift* 349
XII. THE TREATMENT OF PARESIS AND TABES DORSALIS BY SALVARSANIZED SERUM (CONTINUED). Henry A. Cotton 355
XIII. NOTES AND COMMENT:
Gratifying Action of the Recent Constitutional Convention in New York.—Mental Examination of Inmates of the Massachusetts State Prison and Study of the Criminal Insane at the Bridgewater, Mass., State Hospital 393-397
XIV. BOOK REVIEWS:
Sixteenth Annual Report of the State Board of Insanity of the Commonwealth of Massachusetts. (Boston: Wright & Potter Printing Co., State Printers, 1915.)—Index-Catalogue of the Library of the Surgeon General's Office, Authors and Subjects, Second Series, Vol. XX. (Washington: Government Printing Office, 1915.)—Occupation Therapy: A Manual for Nurses. By William R. Dunton, B. S., M. A., M. D. (Philadelphia and London: W. B. Saunders Company, 1915.) .. 399-402
XV. HALF-YEARLY SUMMARY 403-421
XVI. APPOINTMENTS, RESIGNATIONS, ETC 422-426

JANUARY, 1916.

I. A SURVEY OF DEFECTIVE DELINQUENTS UNDER THE CARE OF THE MASSACHUSETTS STATE BOARD OF INSANITY. *A. Warren Stearns* 427
II. SENSORY PHENOMENA IN EPILEPSY. *E. Murray Auer* 439
III. THE CORRELATION OF CLINICAL AND SEROLOGICAL FINDINGS IN PARESIS AND CEREBROSPINAL SYPHILIS. *Ira A. Darling* and *Philip B. Newcomb* 449
IV. THE FUNCTIONS OF A PSYCHOLOGIST IN A HOSPITAL FOR THE INSANE. *Shepherd Ivory Franz* 457
V. RECOLLECTIONS OF A PSYCHIATRIST. *James M. Keniston* 465

VI. Dangers of the Continuous Bath. *William A. White*..... 481
VII. The Treatment of Paresis and Tabes Dorsalis by Salvarsanized Serum. (Concluded). *Henry A. Cotton*........ 485
VIII. Focal Lesions of the Cortex of the Left Angular Gyrus in Two Cases of Late Catatonia. *E. E. Southard* and *M. M. Canavan* 553
IX. Notes and Comments:
The Seventy-second Annual Meeting of the American Medico-Psychological Association.—Celebration of the Twentieth Anniversary of the Danvers, Mass., State Hospital Laboratory on its Modern Basis.................581-584
X. Book Reviews:
The Work of Our Hands: A Study of Occupations for Invalids. By Herbert J. Hall, M. D., and Mertice M. C. Buck. (New York: Moffat, Yard & Company, 1915)—The Answer or The World as Joy: An Essay on Philosophy. W. J. Chidley. (Sydney, N. S. W.: Sydney and Smith, 1915.)—Index of Four Hundred and Fifty-eight Post Mortems of the Insane. Number 1187-1638. State Hospital for the Insane, Norristown, Pa. By Charles J. Swalm, M. D., Pathologist, and Abraham L. Mann, M. D., Assistant Pathologist. With an Introduction by Allen J. Smith, A. M., M. D., etc., Consulting Pathologist of the Hospital. (Norristown, Pa.: Published by Authority of the Board of Trustees, 1915.) 585-589

April, 1916.

I. Pathological Findings in the Sympathetic Nervous System in the Psychoses. *A. Myerson*................... 591
II. The Wassermann Test in Practical Psychiatry. *Lawson G. Lowrey* 601
III. The Sensibility of the Nipple Area with Reference to Mental Disease. *Mildred E. Scheetz*.................. 611
IV. The Treatment of Paresis (Preliminary Report). *Britton D. Evans* and *Frederic H. Thorne*....................... 623
V. The Intra-Cranial Injection of Salvarsanized Serum. *Drew M. Wardner*................................... 643
VI. A Further Contribution to the Study of Aphasia Apropos of a Case of Verbal Amnesia and Alexia. *Alfred Gordon* 649
VII. A Unique Murder Case with Application of New Law Governing Expert Testimony. *James W. Putnam*....... 659
VIII. Notes and Comment:
History of the Institutional Care of the Insane in the United States and Canada.—Eighth Annual Meeting of the National Committee for Mental Hygiene.—Hospital "Preparedness" in England................................. 666

IX. BOOK REVIEWS:

The Criminal Imbecile: An Analysis of Three Murder Cases. By Henry H. Goddard. (New York: The Macmillan Company, 1915.)—Text-book on Nervous Diseases. By G. Aschaffenburg, H. Curschmann, R. Finkelnburg, R. Gaupp, G. Hirsch, Fr. Jamin, J. Ibrahim, Fedor Krause, M. Lewandowsky, H. Lieppann, L. R. Muller, H. Schlesinger, S. Schoenborn, H. Starck and H. Steinert. Edited by Charles W. Burr, M. D. (Philadelphia: P. Blackiston's Son and Company, 1915.)—Man—An Adaptive Mechanism. By George W. Crile, M. D. Edited by Annette Austin, A. B. (New York: The Macmillan Company, 1916.)—Games and Exercises for Mental Defectives. By Hilda A. Wrightson. With a Preface by H. H. Goddard. (Cambridge, Mass.: Caustic-Claflin Co., Harvard Square, 1916.) 673

X. OBITUARY:

Dr. Alfred Ira Noble.—Dr. George Hamilton Schwinn.. 678

XI. HALF YEARLY SUMMARY 681

XII. APPOINTMENTS, RESIGNATIONS, ETC. 701

XIII. INDEX, VOLUME LXXII 708

Vol. LXXII. July, 1915. No. 1

AMERICAN JOURNAL OF INSANITY

PRESIDENTIAL ADDRESS.*

ON THE RELATION OF PSYCHIATRY TO THE STATE.

By SAMUEL E. SMITH, M. D., Richmond, Ind.

Society has in recent years manifested a sound and stimulating interest in the progress of psychiatry. We have begun to see the fruits of this attention in the crystallization of some of its knowledge in legislation—much of it enlightened and beneficial in its results. Psychiatry, to meet the demands of an awakened public conscience for additional truth, is broadening the field of its inquiries. We, on our part, have devoted much time and study to the care of the insane, and have accomplished much in the planning, construction and equipment of institutions for better housing, classification and treatment. For this purpose and under our advice and direction society, through its various units of government, has applied millions and millions of dollars for construction, and for upkeep, maintenance and treatment vast sums are annually expended, making it the largest, costliest, and best directed charity the world has ever known.

The history of this Association is the history of this charity in America. It has guided it by slow stages from mere custodial care, through the infirmary and asylum, to the modern day hospital, with its splendid household and medical equipment, its laboratories, diversions, occupations, re-educational and training schools, colonization, voluntary commitment, after-care, and anything and everything facilitating diagnosis and treatment with a view to the amelioration of the distress of mental disease and restoration to health, home and society. This work has been well done and its accomplishment is a story of lifetime devotion and labor of love by a long list of distinguished members, living and dead, of this Association. This development, familiar to every member present, has not been devoid of interruptions, delays, disappointments and discouragements by political interference, depleted treasuries, narrow and short-sighted policies, top-heavy officialdom and the like, and yet throughout its course it has maintained, and to-day enjoys, a high degree of public confidence.

---

* Delivered at the seventy-first annual meeting of the American Medico-Psychological Association, Old Point Comfort, Va., May 11-14, 1915.

To the educational efforts of the superintendents of the hospitals more than to any other single agency is credit due for the system of state care. In season and out they have pressed upon the attention of the public and the constituted authority, the wisdom, humanity and value of the early admission of new cases to the hospitals and the duty of the state to provide necessary accommodations for their care and treatment by the establishment of new institutions and the enlargement of the old. Not infrequently have their activities extorted from unwilling states and their doubting legislative bodies necessary funds with which to carry forward their plans for improvements, new construction and maintenance, and yet in the end, however grudgingly these appropriations may have been given, usually, if not always, their application has received public approval and applause. While state care is not complete, except possibly in New York, Delaware and Virginia, it approximates it in most of the states, and the results justify beyond all question the value of the system over the earlier, meager and incomplete methods of care under smaller divisions of government, niggardly administered by commissions, selectmen, trustees and overseers of the poor, from whom the authority was wrested only after a struggle covering many years and led by the superintendents of the hospitals. While the development is a source of gratification, the work is far from finished.

We have preached the doctrine of segregation for nearly a century and the state has in large measure heeded us. Institutions have been multiplied and enlarged to mammoth proportions to meet our demand for state care, and are yet insufficient. Whether the increase of the mentally diseased is real or apparent, the fact remains that the number of so-called insane is larger to-day than history has ever recorded. The burden of care has become enormously heavy and so great in some states as to constitute the largest item of public expenditure. Concretely and approximately, in every group of 300 citizens there is one mentally diseased person whose domicile under public care would cost $1000, and whose care and treatment would demand an outlay of $200 annually for ten years. Complete segregation will require a permanent investment of $300,000,000, and for custody, care and treatment $600,000,000 more in ten years. Small wonder that an enlightened public is asking on every side from the Senate chamber to the boys' club the pertinent question, Why? And this question must be answered. An intelligent philanthropy demands knowledge. On faith alone it cannot and will not carry this mighty burden. The spirit of altruism is beautiful and helpful in some degree, however applied, but is not permanently beneficial unless founded on scientific knowledge. Herein lies the responsibility of this Association, and from its members must come this information. In our wards and laboratories must be worked out the problems of ætiology with scientific accuracy before substantial progress can be made in prevention.

Never in the history of this Association was the responsibilty resting upon it and its individual members so great as it is to-day. If, after the ceaseless effort of 71 years, state care may be regarded as successfully and permanently established, even if not quite complete and perfect, we of this Association find ourselves possessed of a reasonable degree of public confidence, it means something. Public confidence in this instance spells faith and responsibility. Faith is in us for the lessons we have learned and taught to others—a faith justified by works—for things done for the insane and for the state in the great service in care and treatment. Responsibility rests upon us for the guidance of an awakened public, better informed and more intelligent than ever before, in the difficult field of prevention. The layman's point of view is not only changed, but it is broadened by elevation; he now looks over and behind hillocks which were formerly barriers and down into valleys hitherto bottomless. When he wants to know, the time is come when he should know.

During the past ten years the subject of prevention has held an important place in our program. The futility of segregation of the so-called insane as a means of prevention, while the feeble-minded and epileptic remain at large, has long been apparent. Humanitarian motives originally and mainly have prompted and justified the segregation of the insane for treatment and custody and led, by reason of the immensity of the cost, into our system of state care. It was not established and developed as an eugenic movement, although we are coming more and more to appreciate its eugenic value. Latterly more importance has been attached to it as a factor in prevention, and yet it must be admitted that this element is negligible as compared with the value of segregation of the feeble-minded and epileptic, since more than 50 per cent of the women in our hospitals are beyond the child-bearing period and the incidence of insanity increases with advancing years.

Insanity, so-called, has been properly termed an end-product. The processes may be long or short and include one, two or more generations, and based upon a syphilitic infection, an alcoholic degeneration, trauma, an auto-intoxication, or whatnot, yet whatever it may be must be determined and given publicity. Humanity demands, and duty agrees, that no effort must be relaxed and no means omitted to relieve the distress of the end-products, yet another duty urges recognition and control of the morbid processes which threaten an overwhelming sub-normal output.

Psychiatry, then, has a two-fold relation to the state. On the one hand it is the treatment and control of the so-called insane, which is generally accepted and practiced. The other aspect is the guidance of the state into practical methods of prevention. The latter depends upon the former. We may go on to the end of time treating and caring for the mentally diseased and may return a goodly number to their homes and former walks of life, and yet in the end the results are temporary only unless, in the methods of treatment and care, we go back and beyond into the realm of causation and by a scientific analysis of all our cases demonstrate the morbid elements responsible for so much sub-normal product. In the study of this complex problem, progress is necessarily slow, yet some advance is being made and some important facts have been gathered.

Without entering upon any extended discussion of the complex subject of causation, it is pertinent here to make brief reference to it. As our investigations have advanced during the past 10 or 15 years, the accepted causes of mental disease have been numerically reduced. Not forgetful of, but omitting for the sake of brevity, the acute infections, and the auto-intoxications resulting from disordered metabolism, we are forced to admit that the chief factors in the production of mental disorders are, in the order of their importance, *heredity, syphilis, alcoholism* and *other drug habits*. While granting that the term heredity is more convenient than exact, it is generally accepted to mean the transmission of a defective organism from one generation to another. And in the light of the results of recent investigations and the trend of scientific opinion, the elements influential in originally modifying the organism are syphilis and alcoholism, and less frequently other drug habits. As our tests for syphilis become more precise, the number of mental defectives showing positive reactions to them has steadily increased, and it seems now probable that transmitted syphilis produces as many mental defectives as direct infection. Unfortunately we have no corresponding test for alcoholism and other drug habits, but the study of the family history and clinical observation furnishes sufficient ground for assigning alcoholism as the direct cause of many cases of epilepsy, feeble-mindedness, dementia præcox, neurasthenia, psychasthenia and other mental disorders attributable to a defective organism. If, then, syphilis and alcoholism or other drug habits are shown to play such important parts in heredity, their value as causative agents of mental defectiveness is enormously increased. This view of causation does not by any means make clear the origin of all mental defectives, but it certainly includes the majority of them and furnishes abundant suggestions for prevention.

The responsibility of this membership does not end with its hospital and laboratory work and the knowledge of causation it may gather there. Unless there is found a practical application of this knowledge, it is useless in prevention, and therefore its wise dissemination into those channels which may best reach and impress the public mind becomes an important function. If the state is to be guided with the same care and safety into the field of prevention as it has been into that of treatment and management, cautious advice is necessary.

This is a period of law making. Advanced but immature thought finds its way quickly into the statute books of the land.

Good causes are often embarrassed and hindered, and humanitarian effort is not infrequently limited by unwise and impractical legislation. The subject of prevention of the mental defective has not wholly escaped.

The eugenic laws suggested for recent enactment in several states furnish an example of such premature legislation which must prove more harmful than helpful. The dignified science of eugenics has been degraded into a public plaything and made the unfortunate object of the cheap wit of the stage and public press, for the reason that its principles have not been sufficiently worked out to furnish a sound foundation for a legal superstructure. Indeed, there is no assurance that its principles, whenever they are known and proven, can ever be applied by the law to improve the efficiency of the race. The statutory requirements of even a clean bill of health for a marriage license fails, notwithstanding it aims to prevent infection, direct and indirect, from syphilis and tuberculosis—diseases recognized and admitted by every thinking man and woman in the land as contributing enormously to human misery and incompetence. This law has never proven successful in any state, because thorough medical examination, a *sine qui non,* is difficult and costly, and medical certificates are obtainable from unskilled and incompetent medical men for small fees based upon imperfect examination which defeat the very purpose of the law. Moreover, as has been repeatedly pointed out by Dr. White and others, it is a reasonable expectation that common-law marriages and illegitimate sexual relations must follow any legal effort to restrict marriage. It seems apparent, also, that the elimination in any degree of the human element from the marriage contract must decrease legal marriages and the birth rate, and diminish the importance of the family, the very source of our social strength. Discouraged thus in the application by law of the simple rules of prevention of infectious disease through sexual contact, little may be expected from legal assistance in the practical observation of the higher and more complex principles of the science of eugenics. Only careful medical and social observation, genetic experimentation and biologic investigation through a long period of time can develop the knowledge on which to base safe rules of human conduct in the laudable effort of race improvement. It is a subject worthy of the most careful consideration and every encouragement and assistance which psychiatry can accord it, and the cause cannot be better served than by judicious discouragement of premature legislation which belittles and hinders, rather than stimulates, progress in a worthy cause. No theoretical standards of eugenics can be successfully forced on any community, and no standard of one community can be forced on another differently organized.

Legalized sterilization, promising and valuable as it is, has made little progress as a means of prevention, because it is too far in advance of popular opinion. In my own state of Indiana, where in 1907 legal recognition was first given it, the purpose of the law is " to prevent procreation of confirmed criminals, idiots, imbeciles and rapists," and is applicable in " pronounced unimprovable cases " only; it has not advanced in public favor as rapidly as was expected. Even after eight years it must be applied with discretion and caution, because, lacking in popular support, the threat and danger of raising the question of constitutionality, a test it can never endure, eternally hangs over it. Paradoxical as it is, the very enactment of the law has stopped in a manner the campaign of education in favor of its underlying principle, because, having secured the law, continued discussion with doubtful support and lack of appreciation of its purpose and value endangers it. The law, therefore, has been limited in its application. An obstacle to the practical application of this and some other legal measures looking to the prevention of mental and physical inefficiency lies in the fact that demonstrable benefits are secured only after an experience of two or three generations and cannot, therefore, be brought to their support, except by some analogy, and this fact emphasizes the contention that in matters of statutory prevention an awakened public conscience is a prerequisite. These observations upon legalized sterilization must not be construed as inimical to the Indiana law, because the writer believes in it, supported the measure in its enactment, and has continued to do so to the present day; but the view in retrospect suggests that more rapid progress would have been made by a longer period of education before invoking statutory aid.

It thus appears that the exercise of a wise influence against premature legislation in methods of prevention is not the least of our duties. A pleasing and convenient method of disposing of suggestions for prevention and kindred subjects by large organizations such as this is to accept them in the form of resolutions recommending legislation and pass them with brief discussion and little consideration of their practical application. They are then used with the stamp of authority by lawmakers, too often seeking personal notoriety rather than the good of the cause, for legal enactments which prove impractical and ineffective and bring the law and the cause into ill repute.

The field of opportunity in prevention is broad and inviting, and consists not in experimental law making, but rather in the dissemination of the scientific knowledge gathered from our wards and laboratories, through well-chosen and sane channels of social service, to the family and individual. The present awakening of the public to the mighty problem of the mental defective is wholesome and affords unusual opportunity to the teacher and psychiatrist ready with lessons in prevention. These lessons must be founded upon our present knowledge of ætiology and explicitly demonstrate the certain penalties of syphilis, alcoholism and other drug habits, and their hereditary influences, and must include the control of the large groups of defective organisms—the feeble-minded, the epileptic and delinquent.

It is unquestionably the consensus of opinion that the complete and permanent segregation of the feeble-minded promises the highest and most far-reaching results in prevention and would go far towards solving this stupendous problem; yet it is also apparent that the great cost of such segregation stands as a bar to its full application. Accepting published statistical reports, there are more feeble-minded than insane persons in the country, with only 50,000 segregated in public institutions, jails, almshouses and penal establishments. Or, in other words, the complete segregation of the feeble-minded would at least involve a duplication in capacity of all the hospitals for insane in the land—a consummation entirely beyond our resources under the present fallacious financial policy of most of our states. In all other forward movements requiring large expenditure of public funds for permanent improvements the state, by bonding, distributes the burden of cost over the two or three generations benefited by the undertaking. In the care and treatment of its defectives the state strangely makes an exception to this policy and places the burden of cost, both for permanent improvements and maintenance, upon the present generation. If such exception could be eliminated, segregation could be extended to many more and the cause of prevention much advanced. It is worthy of consideration and effort in the more populous commonwealths.

In the establishment of new institutions for the insane or feeble-minded under the state-care system, it seems inevitable that cost will be a more important factor in the future than it has been in the past. The trend of approval unquestionably is in the direction of higher and better equipment of existing institutions and their enlargement by colonization, rather than by duplication of institutions. This plan has much to commend it. It reduces the per capita cost of original construction, provides in the parent institution the scientific equipment needful for the study and care of those requiring special treatment, nursing and re-education, and the colonies with simple and inexpensive construction and equipment, located at varying distances from the central plant, afford large opportunity for the employment of custodial cases in such a manner as to contribute something to the cost of their maintenance. This plan is being applied successfully in several of the states and is growing in popularity. It will doubtless result in the segregation of a much larger number of defectives at a relatively smaller expenditure of public funds.

While encouragement may properly and safely be given the establishment of special institutions for the segregation of the feeble-minded, as far as means may permit, it is apparent all can never be removed from society and that the problem must be approached from some other angle. That angle, as it now appears, is the stimulation of public interest by bringing to the attention of the great middle classes of our people the gathered facts bearing directly upon this question. The middle classes include all between the extremes—from thinking and reading laboring men and women to and including the professions—and these constitute the great moving force of our development. If this strong group can be brought to a fine appreciation and consistent support of the movement now being inaugurated throughout the land for the thorough medical examination of the school children and the treatment and training of the large group of sub-normals amenable to such management, the certain penalty of procreation by them and the value of sterilization as a means of prevention, something positive will be accomplished. This support is obtainable, if sought, and there is no higher duty resting upon us as members of this Association than to seek it.

A prolific source of increase of insane and feeble-minded cases lies in that large group discharged annually from our institutions as recovered and improved, and its control confessedly furnishes a difficult and complex problem. This group includes necessarily many cases of manic-depressive psychosis, recurrent in character, and a still larger number of cases of dementia præcox adjusted to lower mental levels. For obvious reasons these cases cannot be retained indefinitely in our institutions and are returned to their homes or set at large to enjoy under present conditions the full rights of citizenship, which means too often the reproduction of their kind. To this group may be added, also, the sub-normal children taken from the public schools and given special training, as the result of medical inspection and supervision, and their number will increase enormously as these inspections become more rigid. True, it is the laudable purpose to train them in special schools and fit them in some degree for lives of usefulness, but in thus avoiding segregation they are, although no better fitted, helped towards parenthood with its mischievous consequences. While public opinion against marriages in these groups will accomplish something, the only positive preventive measure for this menace is sterilization. It may be a long way in the future, because it must wait popular approval, but towards it the campaign of education must be directed.

Nevertheless it is our duty to encourage the system of medical examination of school children by experts specially trained for the purpose, with a view to removing sub-normal children from the schools and treating and training them in the manual training schools under special teachers and medical officers collaborating. A movement should be encouraged to provide, wherever numbers justify them, clearing houses for mental defectives upon the general lines of that recently established by the Commissioner of Charities in New York and under the very efficient management of Dr. Max C. Schlapp. This work is broad and efficient and commends itself.

The out-door work of Dr. W. E. Farnald in connection with the Massachusetts School for the Feeble-Minded and other similar institutions is commendable and effective and should be applied wherever possible.

The establishment of societies and committees for medical hygiene, psychiatric societies, eugenic societies and the like deserve the encouragement of this Association. Such organizations are now actively at work in a few states. They are in a fair way to accomplish much good, and should be established elsewhere. We can contribute nothing better to the great cause of prevention at this time than by the promotion in every state of the union of state-wide societies, affiliated or not with national organizations, of mental hygiene and the like, to include both laymen and medical men, to whom and through whom a better understanding of the nature of mental disease and its preventableness may be taught.

The National and State Conferences of Charities and Correction afford unusual opportunities for the dissemination of knowledge on prevention. This national organization has for many years dealt influentially and helpfully " with the problem of charitable institutions supported by taxation and caring for adults and children who by reason of infirmity or misconduct are for the time being wards of the state." Its membership is limited only to those interested in charity and correction, and two or three sessions of its annual meetings are devoted to the insane, feeble-minded and epileptic, under the chairmanship usually of a superintendent of a state benevolent institution. Its active membership includes the best known social workers in America and its audiences are probably the largest and most influential of any of the national organizations that seek the uplift of humanity. While it is interested alike with us in the all-important subject of prevention, it is apparent that our membership has not, especially in recent years, availed itself of this unusual field for the presentation of its observation and conclusions. A more active participation in its deliberations by this membership would certainly give a more scientific foundation for the doctrines it so widely and effectively promulgates.

And coming closer home, there is no field so rich for the implantation of the seed of prevention, as the local community of every institution, state or private, represented in this Association. All may readily become centers of activity in social service and through local clubs and societies reach the family and individual without misdirection. The peculiar relationship of the institution to the local community gives any expression emanating from it a stamp of authority which is invaluable in this cause. It is admitted that the medical staff is usually burdened with its multiplicity of duties, but ample time should be found, even if it is necessary to add an additional medical officer to the staff for the purpose. No better investment could be made by the state.

The development of after-care directly by the institution or through independent local organizations would stimulate interest where little now exists.

The establishment of a weekly or monthly public dispensary service in connection with each hospital would make it possible for incipient cases of mental disease to receive expert advice and treatment, and is worthy of trial and encouragement. Many such cases would be saved from serious mental upset and commitment, and such a dispensary service in conjunction with the institution's social service and after-care organizations could manage and treat many mental cases at home, even for long periods of time, with satisfactory results. The effect of such treatment and supervision is broader than the benefits accruing to the case itself, because the advice and instruction would reach the entire neurotic family and the immediate neighbors.

Intimate touch with the public might be effected by a thorough survey by each institution for the insane, feeble-minded and epileptics of all the territory tributary to it; and this would also yield valuable information concerning consanguinity, social habits and conditions, and other factors of causation which would suggest corrective and preventive measures.

The local medical societies lend themselves readily to these movements and bring into them men and women of scientific training whose assistance and services are invaluable to the cause. In the end, whatever of substantial progress is made along the lines of prevention of mental or other disease is the result of the primary activities of the medical profession, and without its intelligent and sympathetic support little can be accomplished.

In the education of the people in the direction of prevention, there is need of capable leadership even more efficient and influential than that which made possible the state care system, because it touches the family and the individual and must modify customs heretofore held privileged and sacred. The activities, therefore, of this membership, to be effective, must be of a kind to beget the greatest public confidence.

There is good ground for the belief that many heads of public institutions have in the past limited their influence and lost something in the public estimate by confining their public activities to expert testimony and medico-legal cases, and have thereby encouraged the growing impression that their expert medical opinion and advice on all public questions is based upon a monetary consideration. An ethical question, debatable of course, can be raised in this connection. If not now, the prediction is safe that the day is not distant when the medical superintendents of the public hospitals will regard it as their duty to decline to appear as experts in court except as members of an impartial commission to determine the question of mental disease and responsibility, appointed by some legally constituted authority. It is questionable whether a medical officer can ever appear as a partisan expert witness without jeopardizing in some degree the interests of his institution, his personal and professional dignity, and his influence as a medical adviser to the public. There can be no higher mission of such an officer than to carry directly to the people his expert knowledge of mental disease and its prevention.

Aloofness has been charged directly or by implication against this Association by some other medical societies, but this criticism, based doubtlessly upon an imperfect conception of its work, is disappearing and may be entirely removed by cooperation in this common cause of humanity in which every worthy member of the profession is vitally interested.

The growing importance of psychiatry in the curricula of the medical schools testifies to an awakened interest in a subject hitherto regarded as obscure and cheerless, if not speculative and intangible, and encourages the belief that it is becoming more generally recognized as " a large and important chapter of inner medicine," and is " likely to prove a formidable rival of all the other medical specialties for the affection of the better young men now entering upon medical careers" (Barker). These facts are indeed encouraging, but it will be remembered that the great army of strong and influential medical men active now in the practice of the profession and useful to us in the campaign of prevention have had little or no training in psychiatry and must be enlisted in the cause on the broad ground of general prophylaxis. On proper appeal, however, this can be done. And furthermore, a closer relationship with the general profession will, through cooperation, lead to the establishment of more psychiatric institutes and clinics in the populous centers and thereby stimulate activity in the field of research and treatment. Psychiatry is so broad in its scope and its problems are so enormous that it welcomes the student of all the allied and subsidiary sciences. In the view of Dr. L. F. Barker, "no single investigator, of course, can hope to be active in all parts of this large and varied field of inquiry. Not even the collective activities of the members of a single psychiatric clinic can cultivate more than a small portion of the field. The work is cut out for the aggregate of the world's psychiatrists for at least many generations ahead."

The enlistment of the medical profession in these activities brings into the cause the most potent and influential of all the factors of prevention—the family physician—the one person who has the first and the last word in shaping the distinies of the race, the one who dares walk "where angels fear to tread"; the one person who ventures within the sacred precincts of the hearthstone, or at the steps of the holy altar makes bold to say, "Thou shalt not." Arm him with the facts being gathered to-day in the wards, the laboratories and such meetings as this, and the battle is half won.

Other avenues of approach and other influences might be mentioned, but those enumerated suffice for present purposes. Through these the dangers of an overwhelming increase of the mental defective can be demonstrated, the public conscience can be reached and aroused to the necessity of observing a few fixed rules looking to the conservation of human efficiency. Then and not till then may we look with reasonable expectation for any practical results from legal enactment upon sterilization, restricted marriages, higher eugenics, and complete segregation of the feeble-minded.

IMMIGRATION.

The subject of immigration has assumed additional importance and is rendered somewhat more complex by reason of the present European war. While practically suspended now, resumption is expected after the cessation of hostilities. There seems to be a divergence of opinion among public men of the effect the war will have upon future movements of population to this country. On the one hand it is claimed that it cannot in many years, if ever, attain such proportions as prior to this conflict, when, for example, 1,218,480 immigrants were admitted during the year ending June 30, 1914. This assumption is based upon the statement that the war will be exhaustive to the participating powers as well as to their neighbors, and that with a diminished national population abundant employment will be found at home for both men and women able to do any kind of work in the rebuilding and operation of neglected and damaged industries, internal improvements, and national defenses; and that, if history repeats itself, such a costly war will be followed by an era of unusual industrial prosperity in all the affected countries, making emigration unnecessary and undesirable.

On the other hand, the opinion is held that the heavy burden of taxation, raised to the very limit to repair as soon as possible the extraordinary national losses sustained by this conflict, will markedly increase the drift to this country. In this exodus, it is predicted that many weak, defective and dependent persons will be encouraged to join, because public relief at home will be curtailed, if not entirely withheld, temporarily at least, for want of public funds, while in America substantial relief is assured if the gauntlet of the port of entry can be safely run.

Whatever view of the situation may prove correct only time can tell, yet it may safely be assumed that the immigration of the next five years will not bring to our shores the most desirable material for good citizenship. It goes without saying that the losses in war are the best blood of the nation, because only the strongest youth and best manhood are called to the colors and the weaklings remain at home to help the women folk as " hewers of wood and drawers of water," and later to father the coming generation. The several nations will see to it, as a matter of national safety, if not of existence, that the best of the survivors do not emigrate, and such as are permitted or encouraged to leave will come from the weaker groups.

With such a discouraging prospect it behooves us to increase our activities and vigilances in the direction of better legislation upon this subject of immigration. All of us are aware of the weight and unjust burden upon some of our Eastern states, and particularly New York State, as a result of the laxity of our immigration laws and the incomplete medical inspection under them by reason of the limited number of trained medical examiners.

It is not my purpose to anticipate any report the Committee on Immigration may render to the Association, but rather to call special attention to this important subject at a critical time. The transactions of last year are not clear upon the continuation of this committee, but in the judgment of the President and Secretary, it was deemed desirable to give it a place on the program in the hope that it has continued its work and may have a report for presentation and consideration.

ANNUAL ADDRESS.*

PUBLICITY AND THE PUBLIC MIND.

By DOUGLAS SOUTHALL FREEMAN, Ph. D.,
Editor The News Leader, Richmond, Va.

The rapid extension of the field of your beneficent studies, gentlemen, is probably the reason for the selection of a layman to deliver the annual address before you. It is certainly this layman's only justification for accepting that invitation.

As long as insanity remained solely a medical problem any discussion of its social aspects was by the mark. But now that insanity is viewed not less as a disease of society than as a disease of the individual, all that illumines, even in the slightest degree, those congregate social forces that may superinduce mental disorders is of value in the study of the prevention of insanity. " Manias and delusions," in the now familiar words of Sumner, " are mental phenomena, but they are social. They are diseases of the mind, but they are epidemic " (Folkways [1907 edition], 210).

On this premise I shall endeavor to show you that there exists what I have styled the mind of the reading public; that this shows itself in numerous ways; that it bears an intimate relation to the instincts, has a very definite and necessary place between the mind of the individual and the mind of the crowd, and is of danger to society and of interest to you as psychiatrists when it passes from its proper place and helps transform the mind of the crowd into the mind of the mob. I shall conclude with nothing more substantial than a number of questions for your consideration, and I shall have to plead the employment of a somewhat limited psychological apparatus; but I shall ask your indulgence on the ground that an humble start is better than no beginning. For the subject we are to discuss, strangely enough, is one that has received but scanty attention from the many eminent men who have developed social psychology—Spencer, Tarde, Le Bon, James, Ross, McDougall, Davis, Cooley and the rest.[1]

---

* Delivered at the seventy-first annual meeting of the American Medico-Psychological Association, Old Point Comfort, Va., May 11-14, 1915.

Modern publicity has developed so subtly and into so many channels of recent years that few of us can appreciate the tremendous influences it brings to bear on our mental processes. The gossip may now sit an hour at her telephone and spread more scandal than the idlest spinster of a generation ago could have disseminated in a month. Congregate city life, spent in trolley-cars that carry advertisements, along streets lined with signs and in homes and offices to which the mail may bring its message three or four times a day, offers infinite possibilities for publicity. Those who need this for themselves or for their products have overlooked few of the many channels. Every railroad, every large corporation, every great industrial establishment, every department of government and every great technical society now has its regular publicity, the end and object of which is to reach and impress the individual through the crowd. One need only read the admirable monographs on advertising—those of Scott, for example—to realize how accurately, how thoroughly and how scientifically the maker of Uneeda Biscuit or the manufacturer of Gold Dust seeks to make his product known to every literate American.

The greatest of the agents of publicity, the newspaper, has acquired dimensions that are almost too large to be impressive when stated in figures. Of the 20,041 daily and weekly newspapers in the United States alone, 2694 are daily. These have a total combined daily circulation of 25,357,000, or approximately one for every four persons in the United States (Ayer's Directory, 1915).[2] When it is remembered that the average intelligent male citizen has been shown by investigation to spend 15 minutes the day in reading his newspaper (Scott, Psychology of Advertising, 232), that 42 per cent of a selected list read two papers a day, that every paper is read by an average of two persons, and that 3 per cent of the same selected list read all the papers published in a large city, the tremendous scope of newspaper publicity is but barely indicated. What else is there that keeps the average man in touch with the world for an average of 15 minutes the day? What other agency is there, for good or for evil, that can be said to hold and to inform the average mind for that length of time every day of every week?

---

[1] As I shall not have occasion to refer directly to the work again, I must at this point express my indebtedness to Howard's Social Psychology, An Analytical Reference Syllabus (Univ. Neb., 1910). This is truly invaluable as a guide to the published literature.

[2] A very interesting monograph might well be written on a study of the statistics of the press as they illustrate wide reading and a consequent information in respect to government and social progress. The circulation of 25,357,000 mentioned in the text is distributed as follows among the American states: Alabama, 177,000; Arizona, 28,000; Arkansas, 80,000; California, 1,100,000; Colorado, 208,000; Connecticut, 223,000; Delaware, 35,000; District of Columbia, 178,000; Florida, 110,000; Georgia, 247,000; Idaho, 35,000; Illinois, 2,590,000; Indiana, 695,000; Iowa, 539,000; Kansas,

As a result of a certain misdirection and misunderstanding, upon the details of which it is not necessary here to dwell, we have an American aphorism that " if you see it in the newspapers it isn't so." In this spirit some of us believe that we are immune to the influence of this publicity. It is for this reason, one may well believe, that the subconscious influence exerted by the press is so profound. On the broad ground that we do not believe what the newspapers say, we believe all the more that which we forget we have learned from the press.

As proof of this—if one might pause to bring proof to bear on a question that is but incidental to the general argument—all newspaper men are frequently impressed and sometimes amused to find their own arguments repeated after them as new creations of the mind. Thus an editor may say to-day that the collapse of Russia's offensive is due not to casualties or to lack of men, but to her difficulties in procuring arms and ammunitions—a very

---

221,000; Kentucky, 247,000; Louisiana, 65,000; Maine, 82,000; Maryland, 380,000; Massachusetts, 1,815,000; Michigan, 780,000; Minnesota, 580,000; Mississippi, 43,000; Missouri, 1,498,000; Montana, 62,000; Nebraska, 305,000; Nevada, 17,000; New Hampshire, 60,000; New Jersey, 387,000; New Mexico, 15,000; New York, 5,355,000; North Carolina, 111,000; Ohio, 1,842,000; Oklahoma, 166,000; Oregon, 102,000; Pennsylvania, 2,488,000; Rhode Island, 133,000; South Carolina, 81,000; South Dakota, 49,000; Tennessee 298,000; Texas, 558,000; Utah, 67,000; Vermont, 44,000; Virginia, 228,000; Washington, 442,000; West Virginia, 129,000; Wisconsin, 464,000; Wyoming, 13,000. With all allowance for the influence of the local weekly press and for the circulation in other states of some of the newspapers that have a very large circulation, how does New York show the influence of its press, and wherein does Nevada suffer or benefit from the fact that it is almost without newspapers?

trite fact, to be sure, but one that may not have been stressed in the news columns—and the editor may cite illustrations and statistics to prove his case. A week or two weeks later the same editor will hear someone begin, " You know, I've been thinking about the reasons for the Russians' failure to employ their strength and I believe it is due—— " and he will be regaled with his own facts and approximately his own figures. The new sponsor of this view would be offended if told that he got his views from his daily newspaper, yet such is the fact. Indeed, the very vagueness of the American phrase, " I read somewhere, I forget where," is the most eloquent proof of the impersonal but dominating influence of the press. The same truth is shown in those new phrases which the newspapers coin and the reading public adopts, altogether unconscious of the source of its inspiration. A volume might be written on the new additions made by the newspapers to the popular vocabulary in a decade.

If we concede the strength of this vast publicity we cannot, I think, avoid the conclusion that there is such a state of mind as that of the reading public. It has its peculiarities; it is controlled by rules which it is the ambition of every editor to discover and it shows itself in so many ways as to make *a priori* argument unnecessary. In citing some of these, as proof of the existence of this mind of the reading public, I shall with your permission so group them that you may anticipate from my examples the next point in my argument—that the mind of the reading public bears a close relation to the mind of the crowd and to the mind of the mob, as we know them psychologically, in that it reflects the elemental emotions and the primal instincts of human nature.

Let us first consider those in which there is the suggestion of panic.

I do them no injustice when I say that those who most fear the press of the country are the bankers. This is not because they have anything to conceal, but merely because experience has shown them the tremendous financial danger of an appeal by the press to the fears of the people. To cite two examples: Some time ago a newspaper printed in a foreign language in a large city published a brief, inoffensive item to the effect that the regular examination of a bank was being made. Unfamiliar with the meaning of this, certain foreign depositors who read the notice became alarmed for their funds. The next morning found a line of them in front of the bank ready to withdraw their deposits; the frenzy of the ignorant aroused the fear of the more intelligent, in precise accordance with Ross' law, and soon there was a run on the bank which forced a closing of its doors and the impairment of its assets. And all because the editor unconsciously aroused the fears of his foreign readers by the publication of a notice that most newspapers have long ago learned to handle as they would dynamite.

Again, the run on the Knickerbocker and Carnegie Trust Companies, which led to the panic of 1907, while it was not due to newspaper publicity, was certainly increased to disastrous proportions by the immediate publication of the news that a crowd was gathering before the doors. On the other hand, who can say but that the disaster might have been averted had some newspaper rushed, to the street in front of the trust companies, an extra edition in which good authorities were quoted to the effect that the institutions were solvent and could pay their obligations.

Very similar in character is the effect of modern publicity on the public demand for commodities. For example, during the early days of the war a newspaper of my acquaintance printed on its front page an article in which an anonymous sugar refiner was quoted as saying, with many qualifications and provisos, that sugar might reach 15 cents the pound. The desk man in that particular newspaper office saw the " scare " in the item and prefaced it with a flaring headline, " Sugar 15 Cents a Pound." The person who read the entire story would, of course, realize that if that price was to be reached a number of things, all remote possibilities, had to come to pass. But owing to what Ross has called the American habit of paragraphesis, the busy housewives, or some of them at least, read only the first paragraph, " the lead." The result was a rush on the retail groceries and cut-rate tea stores that drove sugar from 7½ to 11 cents. One woman, whose normal family consumption of sugar was about seven pounds the week, did not rest content until she had purchased 300 pounds—at almost twice the price she would have had to pay three days later.

I have cited these simple and homely illustrations because it has seemed to me that they show as strikingly as do the money panics so well described by Conant, Gibson, Juglar and Sprague, or the classic waves of speculation mentioned by Sidis (Psychology of Suggestion, 343-49), the readiness with which the public mind, under the stimulus of the press, can be led to acts for which there is no reasoning or reasonable explanation. Every newspaper has it in its power to reproduce on a small scale the Mississippi bubble or the tulip mania.

Close akin to these panics and like evidence of the existence of this mind of the reading public are those curious morality waves that sweep every country from time to time. In the seventeenth century it may be a Salem witchcraft frenzy, so carefully analyzed by Upham (Salem Witchcraft) and by Sidis (op. cit., 331 ff.); in the twentieth it may be, as now it is, the anti-vice crusades that are sweeping the country. The one was an appeal to the superstition and fear of the New Englander; the other makes a more detailed emotional and a scarcely less striking instinctive appeal to the fear of the intelligent city man. The one had the advantage of an historical priority of 200 years; the other offsets this by having at its command newspapers that fan to flame the natural concern of a chivalrous people for the safety of its women. Salem witches were tried by public opinion rather than by law; vice crusades—however much they may accomplish for good—are fundamentally the sentence imposed by the mind of the reading public. For how could they be organized in our complex society without the newspaper to crystallize and, sometimes, to misdirect the mind of its readers?

Of the same type, too, are the fears that come of some particular agent or means of destruction—crazes that are analogous to the "Great Fear" of 1789, that national hysteria so graphically described by Morse Stephens (French Revolution, 1, 178-79). The white slavery excitement is a case in point; the concern over the discovery and reported use of the Maxim silencer is another; the most striking by every count was the veritable mania that swept New York during the winter of 1913-14 as a result of the so-called "poisoned needle" disclosures. The last named I would especially commend to you for study, as it illustrates on a large scale a popular hysteria that would seem to have a connection with those individual cases of hysteria that sometimes lead to acute mania. Incidentally, the "poisoned needle" affair would seem to disprove Ross' first law of crazes—"the craze takes time to develop to its height" (Ross, Social Psychology, 76). and to show how quickly the mind of reading public, through the wider circulation of newspapers, may become distraught with a sudden fear.

Taken together, it seems to me that these and like examples of the same character that have doubtless occurred to you illustrate the ready assertion of the emotion of fear and, indeed, of the instinct of flight, in the mind of the people as they read the papers —to use the words " emotion " and " instinct " as they are defined by McDougall (Introduction to Social Psychology [1909 edition], 49). Men withdraw their money from bank or dump their holdings on a declining market from the same instinct that prompts them to flee from a burning house; they become frenzied over vice crusades or white slavery or poisoned needles just as they became madmen from fear of witchcraft. And they act, not from the impulse given them by commingling on the street corners to be harangued by some wild orator, but from the suggestion conveyed to them primarily through the modern means of publicity. They may become a mob; they begin as a reading public. And the fears which but vaguely suggest themselves to the average mind find, in the columns of a certain type of newspaper, constant and exciting stimuli through " confirmation " of the wildest and most improbable stories.

But lest you think that this indictment applies to all newspapers, or is the constant fault of many, let me present the other side of the case and remind you that often the newspapers stabilize the public mind and allay the rumors they are sometimes charged with circulating. I cannot do better than cite, as proof of this, a single occurrence of comparatively recent date. The newspapers of Butte, Montana, were so threatened and bullied by labor organizations that they decided to give the city a taste of life without newspapers and, by agreement among themselves, all of them suspended. The result was a return to a " state of nature " and, incidentally, almost the bankruptcy of the two leading dry goods stores. The reason was not merely their inability to advertise their goods, but their utter impotence in the face of a rumor that smallpox had broken out among their clerks, rendering it dangerous to visit the stores. The newspapers, of course, could have laughed this rumor out of credence in a single issue.

Closely allied with these social phenomena that illustrate the emotion of fear and the instinct of flight are those in which the tendency of the public to exaggerate is asserted in a most striking but often in a somewhat confusing manner. So far as I know there has been no adequate analysis of these phenomena, but to you, as alienists, they are certainly important. The active, impatient and imaginative American mind—somewhat misinterpreted, I take it, by Le Bon (The Psychology of Peoples, 140)—is almost Gallic in its fondness for excitement and its readiness to jump to conclusions. It was perhaps never better judged than by one of the fathers of modern yellow-journalism who told his chief editors always to "feature" on their front page daily a story which, when he read it, would make the average man cry "Gee, whiz!" This "gee-whiz" mind is also strangely pessimistic for that of a people so young and so hopeful. The average man seldom hears any rumor that he does not construe into the worst disaster of that particular type for which he has any recent parallel. If a fire breaks out rumor at once declares it "the biggest fire" since such-and-such a well-remembered conflagration. If a drought is observed, it is certain to be the "worst drought" since such-and-such a year; if times are hard, they are destined to be "as bad as 1893" or as the direst period of depression recently observed. There must, likewise, always be taken into account the inclination of a certain type of mind deliberately or otherwise to magnify any report it receives and transmits to someone else. If a business house is having a dull season, gossip to that effect will soon have the concern on the verge of bankruptcy; if a man makes the least misstep, he is tried, convicted and sentenced by public opinion before the first evidence is presented. The simplicity of this process, its speed and its most alarming aspects are only discernible, I suspect, from the inside of a newspaper office, to which, in the nature of things, come all the requests of the public for the confirmation of the most absurd rumors. To cite a very simple illustration, we have in Richmond a venerable police justice who is a most unusual character—known to practically every one in the city. He has been in bad health for some years and has been forced to take several vacations for recuperation. I think I am within the facts when I state that not one of these vacations has passed but that at some time during its progress the newspapers have suddenly been deluged with requests to know if the report be true that the judge is dead.

It is precisely the same throughout the country, I believe, when the President goes on a journey. If this be well advertised, and especially if it involves attendance upon any exposition or great gathering, the chances are that the newspapers will suddenly begin to receive inquiries if it is a fact that he has been assassinated. The reason, of course, is the recollection of President McKinley's fatal visit to Buffalo.[3]

These phenomena are of some interest in their origin and they offer a curious intermingling of the instincts of fear or apprehension, of curiosity and of the desires to anticipate conclusions and to be the first to report a fact of interest. But to you, gentlemen, they must primarily be of interest in the questions they raise in your mind as to the influence of the mind of the reading public on the disordered mind of the individual. If the people are so prone to exaggerate and to anticipate the worst, what may be the suggestive influence of the many on the few? Incidentally, these phenomena are of the greatest international moment at this time, inasmuch as the danger of war lies not in the possibility that the President will make a mistake or that Germany will assume a belligerent attitude, but rather that the newspapers may so fix the mind of the reading public and so work on its pessimism and impulse to exaggerate that it may force the government to war because the people believe that war is to be. It was so, as we all remember, in 1898.

We come now, with your permission, to that group of phenomena which, it seems to me, illustrates more clearly than any other the existence of the mind of the reading public and affords us the best basis for that analysis which is to show us the psychological importance of a proper direction of that mind. I refer to the phenomena in which the inclination to imitate is the dominant factor, and I do not think it necessary, for our purpose, to decide between the views of Tarde (Lois d'Imitation) and those of McDougall as to whether this is an instinct or a non-specific innate tendency. The distinction in any event is so small as scarcely to be worth while.

---

[3] It so happened that the day after this paragraph was written, there came curious confirmation of the point made in the text through a wild rumor on the "ticker service" that President Wilson had been assassinated. The reason for this rumor was, of course, the general apprehension of the serious events that would follow the death of the President at the time when excitement over the Lusitania incident was at the highest. Incidentally, the stockmarket broke four points on some issues before a denial from Washington could be had.

For convenience of discussion I shall ask you to let me divide these phenomena into four subdivisions—religious, criminal and suicidal, fashional, and recreational.

In referring to the imitative aspect of religious revivals, I dare not follow the interesting trail blazed by Sumner regarding religious customs (Folkways), and I trust I shall say nothing to give a material turn to that " change of heart " in which I most earnestly believe. But we must all agree that there have been many emotional upheavals in which the instinct to imitate played a very large part. The children's crusade was one (Ireland in Journal of Mental Science, 52, 745, etc. See other references quoted by Howard, op. cit.). The famous Kentucky revival, so often mentioned in the reference works on social psychology, was another (McMaster, History People United States, quoted in Ross, op. cit., 50 ff.). A third we see in the remarkable meetings held by Mr. Sunday. If it be true, as claimed, that Mr. Sunday has been the means of converting more persons than any minister since apostolic times, we must attribute the fact not only to the remarkable powers of the man, but to the skill with which he uses every means to arouse the imitative instinct. It is in no empty desire for self-glorification that he employs some of the best press agents in America ; it is not to attract attention to his own belligerent personality that he asks to be given the whole front pages of the newspapers in the cities where he holds his meetings. He knows that there is a mind of the reading public and that the instinct to imitate can best be aroused by filling the minds of the people, before they come to his tabernacle, with the subtle suggestion of an invincible spiritual and emotional appeal. In no desire to criticise him or to pass judgment on his methods, I submit that Mr. Sunday is a most successful revivalist because he is, among other things, an exceptionally shrewd psychologist. Thanks to modern methods of publicity, he has half his work done for him before he mounts the platform.

It may seem somewhat incongruous to turn immediately from the mind of the reading public as shown in religious revivals to the mind of the reading public as shown in suicide and criminal waves; but they rest, in part at least, on the same psychological foundation. There are few, if any, more striking social phenomena than the contagion of suicide. Seeck (Untergang der Antiquen Weld, I, 258 ff.) attributed the suicide waves of ancient Rome to that "pessimism" which "took possession of the old peoples at the beginning of the Christian era"; modern writers have found somewhat the same explanation for the high suicide rates of certain European countries. Whether this can possibly be the case in so young a country as America it is not my task to discuss; but that there is a strong imitative factor in the methods of suicide is a truism among observant newspaper men. All of us know that if a particular form of suicide is reported with dramatic detail in the newspapers, the next suicide and probably the next group of suicides in the same city will be by the same means, within certain limitations, to which I shall presently call attention. Sometimes, if a suicide be given unusual publicity, it will be imitated throughout the country. The recent bichloride of mercury wave was, by all counts, the most striking example of this kind that has occurred during my recollection. You will remember its origin and progress. A Georgia business man took corrosive sublimate by accident and, after he was told that he would certainly die, he went very deliberately about setting his house in order. As you doubtless observed at the time, the facts were not as they were dressed by some conscienceless and imaginative reporter, for a man who was dying of bichloride poisoning could not entertain his friends at banquets and speculate, Cato-like, on his coming dissolution. But the dramatic element in the case aroused the imitative instinct among those who contemplated suicide and found it easy to procure bichloride tablets. The result was a most alarming wave of poisoning with this compound. I counted twenty reports of such suicides in a few weeks, and was not surprised when a leading medical organization felt called on to tell the public (through its publicity bureau of course) that if persons would insist upon committing suicide they could do so with much less trouble and torture than by taking bichloride tablets. The same waves are to be observed in suicides from shooting, drowning and the like, with carbolic poisoning always to the fore, primarily because this acid is universally known and can usually be purchased without difficulty, thanks to our clumsy drug-laws.

The same instinctive tendencies show themselves in crime, both individual and communal. In a Tennessee city, for example, a well-dressed woman walked into a barber-shop with a revolver concealed in her muff and, calmly drawing the weapon, shot her lover to death as he sat in the barber's chair. The unusual character of the crime and the strange setting placed the story on the front pages of the papers of that city. The appeal to the imitative impulse was strong; within a few weeks two colored women, procuring muffs and following the precise details, shot their lovers in barbers' chairs.

I need scarcely illustrate, in this classification, the now familiar psychology of lynchings. Le Bon (The Crowd) has explained how, in such an outbreak of law defiance, the mind of the mob is baser and more criminal than that of the individuals composing it; Ross has shown how the worst elements dominate (op. cit.); a number of observers have accurately attributed this to the instinct of men to imitate, through the mere stimulus of the crowd, the violence of the worst. The point I wish to make is that lynchings have usually occurred where the public mind was aroused by the horrible details of the tragedy, as reported in the newspapers, and by the unconscious suggestions of violence in the presumably accurate published statements that such action was considered in the crowds that "gathered on the street corners." There must, in a word, always be a stimulus; it is more often the unintentional hint of the newspaper than the cry of some desperado, "Come on, let's lynch him." On the other hand, I submit, subject to correction by those whose observation has been wider, that few lynchings ever occur where the press can state at the outset, on proper authority from the executive, that special deputies will be sworn in or that the militia will be called out to enforce the law. The fact that Virginia has not had a lynching in almost 20 years is to be attributed, I think, to the emphasis of the newspapers on this point, and to the uniform promptness of our Governors in declaring that the whole force of the commonwealth would be exerted to prevent violence.

The chief deterrent in the imitation of suicides, needless to say, is the horrible suffering of the victim on his non-success, or, in the case of crime, the immediate punishment of the perpetrator. This is of course nothing more than plain common sense, familiar to all; but it is illustrated sometimes in a manner that may escape observation. In suicides, in particular, there is always in the disordered mind of the would-be self-destroyer a desire to do something dramatic and to make way with himself with the least possible suffering. In such instances the prospect of defeat or of suffering is usually a deterrent from the imitation of a particular method. Hedda Gabler's horror at the means of Eilert Lovborg's death, as told by Ibsen, is psychologically sound (Hedda Gabler, Archer's Translation, Ibsen's Collected Works [1909 edition], 10, 176). We see like instances almost daily in our newspapers. Not many months ago, for example, an unhappy woman attempted to jump to death from a high building in one of our cities. She was restrained, was arrested and was given most undesirable publicity. Only one woman seemed determined, in the face of this warning, to attempt the same act in the same manner. Going to the identical building, she threw herself down and was picked up from the concrete court of the building an unrecognizable mass of flesh and broken bones. The newspapers which had printed the failure of the former woman to commit suicide published the story of the latter woman's success and gave in all detail the horrible picture of the body. It may safely be ventured that none who read that story will be inclined to imitate the victim; and it may also be stated with some assurance that had the Georgia newspapers presented to their readers the suffering rather than the stoicism of the citizen who started the bichloride wave by accident, that form of suicide would not have been repeated.

As for the deterrent influence of punishment, who has read of a second lynching in a town where members of a lynching party were convicted even of manslaughter? And who fancies that another court tragedy will follow the conviction and execution of the Allens?

Ere I pass from this phase of the subject, permit me to suggest that there must be material for very fruitful investigations along these lines in your suicidal and homicidal wards. Does the law of imitation apply there as fully as in the normal walks of society, where the vast and varied influences of publicity are at work?

The imitation shown in fashions presents many striking illustrations of the mind of the crowd and of the mind of the reading public, but as these are all familiar, I need only dwell on one fact, that the publicity which makes fashions is, within certain bounds, the publicity that destroys them. We owe the curious "tight skirt" scarcely less to the necessities of modistes than to the emphasis placed upon its fashionable character by the women's periodicals and the newspapers. We owe its disappearance not only to those whose income depended upon making something else popular, but also to the newspapers which ridiculed it. The imitative rule in dress is, of course, to carry any fashion to the extreme—as witness crinoline, the large sleeves of the nineties, and the merry widow hats of five years ago; but the cartoonist can destroy what the designer makes. Goldberg is not less potent as an arbiter of fashions than Chéruit or Lacroix, and the shops of the Paris boulevards would close in a season were it not for the women's pages of the dailies.

The same is true of the amusement manias, the psychology of which is so well known as not to need discussion here. One need only remark that in this respect the instincts which showed themselves in the dance manias of the middle ages, so graphically described by Hecker (Dance Manias of the Middle Ages), have not changed in the slightest in 400 years. On the contrary, it is perhaps safe to say that Ross' law on this subject could not be stated with so much precision (op. cit., 76 ff.) were it not that what is done at Churchill's to-night can be known throughout America to-morrow, or that Mrs. Vernon Castle's newest step can be reproduced in every motion-picture theater in the country almost before her first New York pupils have been perfected in it. As for baseball, the "world's series score-boards" in all the American cities show how the newspapers have not only created an interest, but have actually visualized a scene that sets thousands of men to cheering.

In all of this we see what Tarde has so beautifully described in his classic description of the spread of the domestic arts—"the unheard-of sight of many vast nations feeling, at the same time and in about the same way, the beautiful and the ugly, good and evil, admiring or mocking at the same pictures, the same novels. the same dramas, the same operas, applauding the same acts of virtue or becoming indignant over the same crimes, crimes that are made public by the daily press in the four corners of the globe at the same time." (Tarde, Law of Imitation [Parsons' translation], 345.)

The confines of this paper make it impossible for me to further illustrate the manner and extent to which the reading of the people shapes the mind of the people. But I trust I have said enough to show you that this publicity sometimes determines a state of mind in the reading public and that its effects on the people as a whole may be different from its effects on perhaps any single reader. I think it may even be said—though it is not necessary for our argument—that the congregate effect is greater than the sum of the effects on the individuals. This is at least in accord with what we know of social psychology.

But if we admit so much, what then? The important task—for you, gentlemen, the only useful task—is to ascertain the bearing of this publicity on the mental life of the people, to determine how the mind of the reading public affects the minds of those of unstable mentality, and to see what may be necessary to keep sane the mind of this reading public.

Psychologically, the aim of the press must be to link the individual with the crowd, and to unify the mind of its reading public. This is necessary for good government; it is necessary to protect the people from unscrupulous politicians; it is necessary to give expression to that which we call the "will of the people"; it is necessary to safeguard public interests from the indolence of the individual. Were the newspapers to fail in this, we should be an army which had no outposts, a city with no watchmen on the tower. We have left so much to the newspapers and have become so dependent upon them, as our cities have grown, that they are almost as necessary a public utility as a system of transportation, and almost as essential to political health as are water supplies and sewage disposal to public health. If we deny their mission to unify, indeed to create, the mind of the reading public, we take from the newspapers their most useful mission.

On the other hand, the newspapers must keep the mind of the crowd from becoming the mind of the mob, or, to state the case in its psychological sense, must keep the instincts from overcoming the sentiments, the reason and the emotions of the people. To illustrate this very simply, the press must so consolidate the mind of the voters and so inform them through the newspapers they read, that the people will not give away their valuable franchises for naught; but the press must restrain the very forces it has set in motion, lest it encourage that corporation baiting which leads to the overthrow of property rights and brings us to the verge of anarchy. The press must, to take still another case, so arouse careless individuals that they will demand good government and hold to a strict accountability the public officers they choose; but the newspapers must repress that instinct which would, in correcting one abuse, open the way to another and a worse.

To direct the mind of the reading public and to keep it from becoming the mind of the mob—this is a task in which, it seems to me, the press of America needs your assistance. We have had the preventives of the mob mind pointed out for us by Ross and McDougall—education, better teaching and leadership, a better press, a better literature, a better environment, more stable institutions and more strongly emphasized family life. But these are the standing remedies for all social ills. If we are really to take preventive measures, we must understand more completely the method of infection. We must know precisely what there is in some newspapers that drives men mad and foments the mob spirit. We must go to individual cases and must ascertain, if it be possible to do so, just what influence from the mind of the reading public may upset the mind of the man who comes sooner or later to your hospitals. Editors see the danger and sometimes they see the victims—men who become anarchists from reading of social injustice, men who have delusions that seem to bear a very close relation to their newspaper reading. We need to investigate every such case carefully and to weigh the newspaper in its relation to the social causation of insanity. How much of the excitement that stirs, or is synchronous with mental disorders is due to the newspapers? How many cases have you in your hospitals whose mania could, upon investigation, be traced to the suggestion of the press or to the mind of the reading public? What do we print that is dangerous and what may we print that is wholesome? How can we do the work we owe society and government without danger to those we would serve? How far must we go in preparing newspapers that are "mentally safe," not only for the strongest but for the frailest mind?

I warned you that I should conclude this paper with nothing more stable than questions, and now I have asked them. They may be worth your answering. They may make it of some interest to you to investigate your patients' history for the possible influence of the mind of the reading public.

For who knows what we may find of the social causes of insanity? We are on the frontier of a new continent. Just as the methods you employ to-day are as different from the regimen of the straight-jacket as the democracy of America is different from the autocracy of a Sforza, so it may be that in prevention, as in treatment, we shall find new angles of approach and deep-seated causes as yet beyond our vision. I do not know. I should be presumptuous to speculate. But I cannot think it will be futile for you to delve with master hands where I have but touched with amateurish fingers, and to ascertain if there be not some connection between those instincts which are wont to warp the mind of the reading public and those mental disorders which are but exaggerated instincts.

RECENT EXTENSION OF OUT-PATIENT WORK IN MASSACHUSETTS STATE HOSPITALS FOR THE INSANE AND FEEBLE-MINDED.*

By L. VERNON BRIGGS, M.D.,
Member and Secretary of the Massachusetts State Board of Insanity,
AND
A. WARREN STEARNS, M.D.,
Assistant to the Massachusetts State Board of Insanity.

The present State Board of Insanity was appointed in August, 1914, and within a week it took up the question of extending the out-patient work of each state hospital throughout the districts which the several hospitals covered.

The School for the Feeble-Minded had for 25 years held a clinic at its hospital; the psychopathic department of the Boston State Hospital had been holding out-patient clinics since it opened in 1912; and the Danvers Hospital had made plans for out-patient service.

In establishing a policy which would affect all institutions for the insane and feeble-minded, it was the intention of the board to stimulate each hospital to " reach out," as Dr. Adolph Meyer once said, " into the community and be responsible for the mental health of the community or district which it covers." The board voted that each hospital then doing out-patient work should extend the same along the general plan outlined for all the institutions, that the work might be uniform, and that those institutions which had not been doing any out-patient work should, at the earliest possible date, establish out-patient departments and out-patient clinics in the several large cities in their own district, preferably in the evening, when patients needing such advice could conveniently attend without interfering with their duties or jeopardizing the positions which they might hold. This would also enable the staffs of the hospitals to hold clinics without interfering with their hospital work. The board felt that these clinics could be started without an increase of expense or an increase in the staffs, as members of the staffs would appreciate the opportunity to see early cases, work along the lines of prevention, and also to see discharged patients, thereby keeping track of them.

---

* Delivered at the seventy-first annual meeting of the American Medico-Psychological Association, Old Point Comfort, Va., May 11-14, 1915.

Some hospitals already had after-care or social-service workers. All hospitals were urged to take on such workers who should be present at each clinic. It was hoped that the out-patient departments would eventually cover the work of the clinics, the after-care or social-service work, mental hygiene and boarding out. It was also hoped to stimulate the discharge of cases earlier than had before been possible, for many suitable patients could safely be sent out if clinics were established in or near the town or city where they resided. The after-care or social worker would be glad to get in touch with new cases who first came to the clinics, would see the discharged cases or look them up if they did not report, and often be able to interview members of the families of patients in the hospitals who could come to the clinics but who could not conveniently come to the hospitals.

The board believed that the out-patient department would be the first important step for the prevention of mental disease in this state, and that the supervision and after-care of patients would prevent the return of many who had been discharged. Out-patient departments are not alone for medication and treatment, but also for education and for the interpretation of the functions of the great state hospitals. A comparison may well be made here with the public health center idea. Formerly the responsibility for the supervision of the boarded-out patients had been centralized in the State Board of Insanity. The board began in August, 1914, to decentralize this supervision, placing the patients in their own districts under the supervision and immediate care of the hospitals, each hospital assuming the responsibility for the patients in its district.

On September 30, 1914, Taunton State Hospital had 11 patients boarded out in family care; Northampton had 24 patients; Westborough, 3; Boston State Hospital, 1 patient; a total of 39.

On April 1, 1915, Worcester State Hospital had 38 patients boarded out in family care; Taunton had 43 patients; Northampton, 28; Danvers, 6; Westborough, 45; Boston State Hospital, 28; Medfield, 32; Gardner State Colony, 23; 243 in all.

OUTLINE FOR OUT-PATIENT WORK AT MASSACHUSETTS STATE HOSPITALS.

Hospital (out-patient department).	Clinic	Examination and treatment of all pre- and non-hospital cases, such as psychoneuroses, alcoholics, syphilitics and mild insane. Diagnosis of feeble-minded. Training for practicing physicians in mental disease. Examination of special cases for courts, physicians and social agencies.
	After-care work	Systematic follow-up work, such as interviews with patient and family before discharge, supervision when discharged, employment aid, return to clinic at hospital when advisable. To take out-patients from other hospitals if in district.
	Boarding-out work	Study of hospital cases, investigation of future boarding places, supervision of patients boarded out in district, co-operation with state boarding-out system.
	Mental hygiene and prevention	Education of medical and lay public in matters relating to prevention of insanity. Care of insane by state or community. Eugenics, alcohol and syphilis problems. Scope of state work in general.

ORGANIZATION OF OUT-PATIENT STAFFS.

Medical head of out-patient department.	Medical assistants	Doctors and internes or medical students and psychologists from hospital or community, especially practicing physicians in neighborhood to work in clinic.
	Social service	Paid and volunteer workers to work in clinic and out, with an after-care and boarding-out worker.
	Clerks	Historian and stenographer and record clerks, to work in clinic and also in clerical part of other work.

At the end of about one month, or on October 1, 1914, 417 persons had attended the clinics. Danvers State Hospital had opened clinics in Haverhill, Lawrence, Gloucester and Lynn. The superintendent, assistant superintendent and social worker attended each of these clinics.

Worcester State Hospital opened a clinic on September 1, with a total of 15 patients attending the first month; and the Psychopathic Hospital had 358 persons visit its clinics during the month.

At the end of seven months, or on April 1, virtually every part of the state was covered; clinics had been opened by the Worcester State Hospital at Worcester and Spencer; Taunton State Hospital at Taunton, Fall River and New Bedford; Northampton State Hospital at the hospital, at Springfield, Greenfield and Pittsfield; Danvers State Hospital at Lawrence, Gloucester, Haverhill, Lynn, Salem and Newburyport; Westborough State Hospital at the hospital and at the Homeopathic Hospital in Boston; Gardner State Colony at Fitchburg and Winchendon; Monson State Hospital has clinics for epileptics; Massachusetts School for the Feeble-Minded at the school, at Worcester, Taunton and Fall River.

For the three months ending April 1, there was a total of 2536 visits, an average of 845 a month, for nine institutions. The number of first visits for this period was 671, or an average of 223 a month. At this rate, 2676 patients would be seen in a year, which is 72 per cent of the total number of commitments as insane for the year ending September 30, 1914. These figures indicate, however, that this number would probably be considerably larger at the close of the year.

Cases have been referred to the clinics by physicians, by other hospitals, by charitable and other organizations, by the courts, by schools, some have come on their own initiative, and many discharged patients have reported at the request of the hospitals.

The following is a copy of the form for report rendered each month by the out-patient departments:

REPORT OF OUT-PATIENT DEPARTMENT.

....................State Hospital.

For the Month of................

Clinics:	Males.	Females.	Totals.
Total number of first visits	....	....	....
Total number of visits by all patients............	....	....	....
Number of different patients....................	....	....	....
Sources of first visits:			
Referred by physicians	....	....	....
Referred by other hospitals	....	....	....
Referred by charitable and other organizations	....	....	....
Referred by courts	....	....	....
Referred by schools	....	....	....
Came on own initiative......................	....	....	....
Cases discharged from this hospital reporting for first time	....	....	....
Miscellaneous and unknown	....	....	....
Total	....	....	....

Clinics held:

Hospital. Day and date. (If regular days, give such with hours.)

At other places. (Give city or town, place and date, with total patients, first visits and total after-care cases reporting for such.)

New clinics established. Where and when?

After-care:

Total number of patients leaving hospital........................ ....

Total number discharged to after-care.......................... ....

Total number of visits by social worker......................... ....

Total number of patients visited by social worker................ ....

Total number of patients on visit............................. ....

Boarding-out:

Total number boarded out by hospital......................... ....

Total number placed this month.............................. ....

Total number returned this month............................. ....

Total number visited this month.............................. ....

Mental Hygiene:

Lecture or talk by member of hospital......................... ....

Public meetings under auspices of hospital...................... ....

Any other activities with exhibits, sales, etc...................... ....

Remarks:

The social-service worker is proving an important factor in the thoughtful discharge of patients; for example, in one of our state hospitals a patient under consideration for discharge is held until a report has been received from the social-service worker of the home conditions or environment into which the patient must return. In other words, the medical and social elements are considered in every discharge.

The problem of the feeble-minded has had special attention by the opening of clinics in different parts of the state. The attendance at these clinics of patients and physicians seeking advice has been so great that the staff physicians have been obliged to turn some away, owing to the length of the clinic and the mental fatigue of the examining physicians.

Another extension of the hospital work is the wider public cooperation effected by meetings of medical societies held in the hospitals, and talks on modern care and treatment of the insane and the relation of the state hospitals to the public, by members of the hospital staffs at medical and other public meetings outside the hospital.

An interesting development has been the service rendered private physicians who have sought advice of the out-patient staff for their own patients. One illustration will indicate the enthusiasm with which this movement has been received: After a hospital in the western part of the state had opened clinics in two cities in its district, the physicians of a third and important city petitioned the superintendent of the hospital to open a clinic in their city; and this was promptly done.

The hospitals are open to the public and may be visited daily, including Sunday.

At the end of seven months we can say that the out-patient department has proved a success and has met the fondest hopes of the board.

The number of physicians who attend these clinics is surprising; in some of the early clinics they out-numbered the patients. They are invited to bring their patients to the clinics, to consult with the physicians on duty at the clinics regarding patients they may have, with the hope of so caring for them as to prevent institutional treatment, if possible. The hospitals, medical societies and other organizations have gladly given space for the clinics free of charge, and the expense so far has been a negligible amount.

KEY TO MASSACHUSETTS STATE BOARD OF INSANITY MAP, SHOWING OUT-PATIENT DEPARTMENTS.

Districts indicated by parallel lines, oblique lines, oblique broken lines dotted surface and clear space.

I. Northampton State Hospital, with clinics at Pittsfield (1), Greenfield (2) and Springfield (3).

II. Monson State Hospital (for Epileptics), with joint clinics at Pittsfield (1), Greenfield (2) and Springfield (3).

III. Gardner State Colony, with clinics at Fitchburg (8) and Winchendon (21).

IV. Worcester State Hospital, with clinics at Spencer (4) and Worcester (5).

V. Grafton State Hospital, with clinic at Worcester (6).

VI. Westborough State Hospital (Homœopathic), with clinics at Westborough (7) and Boston (13).

VII. Medfield State Hospital. No clinics.

VIII. Wrentham State School. No clinics.

IX. Taunton State Hospital, with clinics at Taunton (9), Fall River (10) and New Bedford (11).

X. Bridgewater State Hospital, with clinic at Brockton (12).

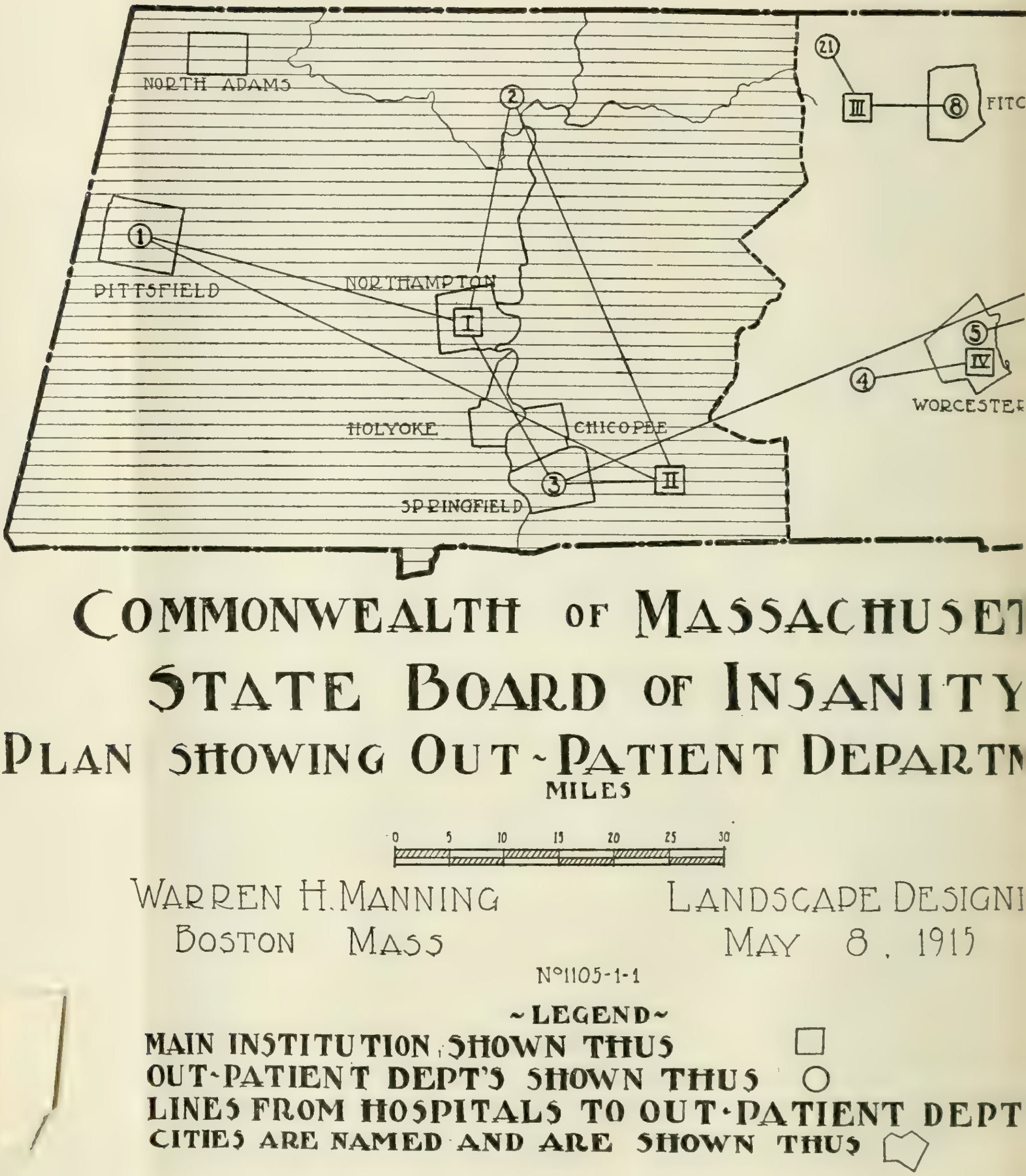
XI. Boston State Hospital, with clinic at Psychopathic Department (14).

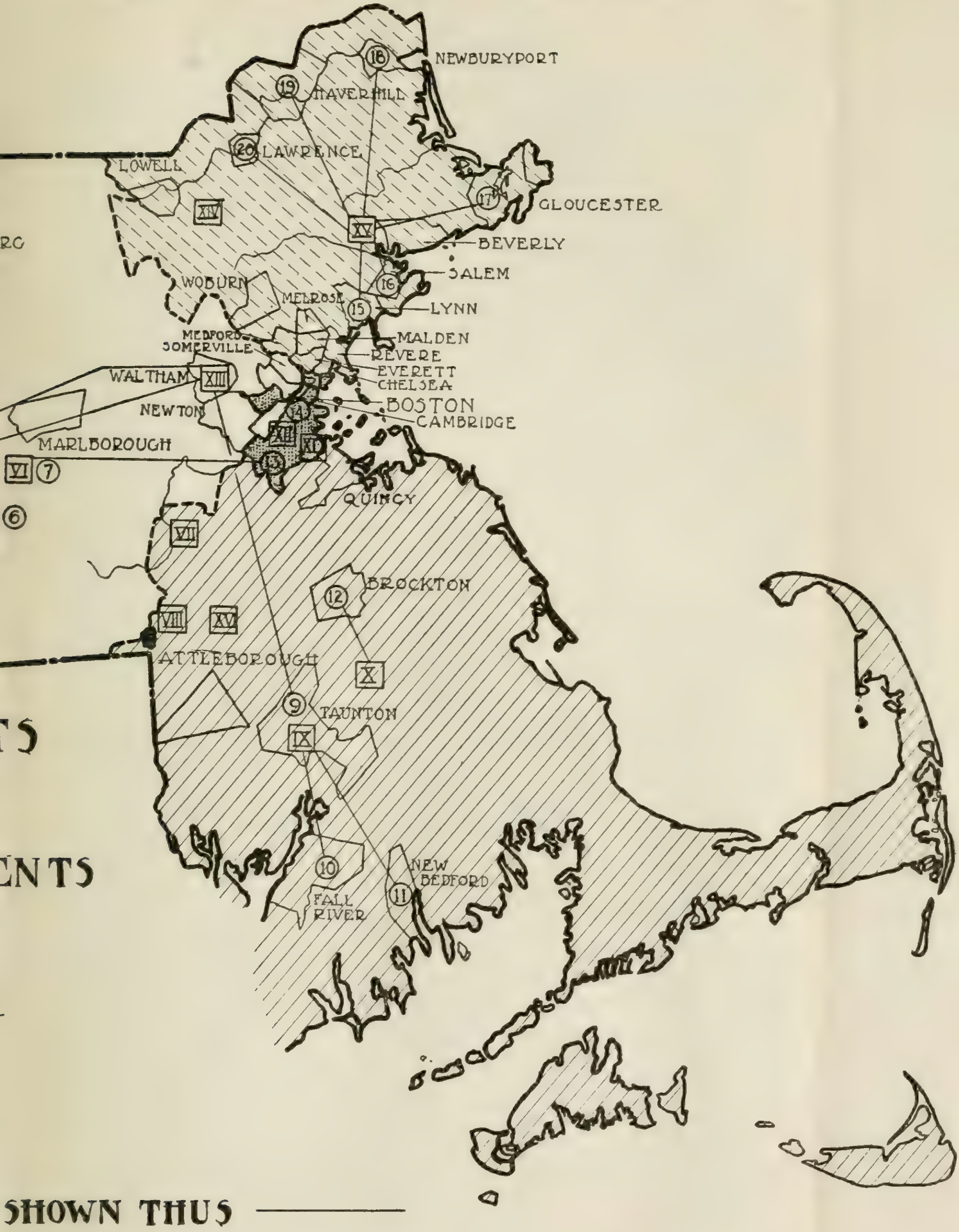
XII. Psychopathic Department, Boston State Hospital, with clinic at Boston (14).

XIII. Massachusetts School for the Feeble-Minded, with joint clinics at Springfield (3), Worcester (5) and Taunton (9).

XIV. State Infirmary at Tewksbury. No clinics.

XV. Danvers State Hospital, with clinics at Lynn (15), Salem (16), Gloucester (17), Newburyport (18), Haverhill (19) and Lawrence (20).


NORTH ADAMS
②
㉑
Ⅲ
⑧
FITC
①
PITTSFIELD
NORTHAMPTON
Ⅰ
⑤
Ⅳ
④
WORCESTER
HOLYOKE
CHICOPEE
③
Ⅱ
SPRINGFIELD
COMMONWEALTH OF MASSACHUSET
STATE BOARD OF INSANITY
PLAN SHOWING OUT-PATIENT DEPART
MILES
0 5 10 15 20 25 30
WARREN H. MANNING
BOSTON MASS
LANDSCAPE DESIGN
MAY 8, 1915
N°1105-1-1
~LEGEND~
MAIN INSTITUTION SHOWN THUS □
OUT-PATIENT DEPT'S SHOWN THUS ○
LINES FROM HOSPITALS TO OUT-PATIENT DEPT
CITIES ARE NAMED AND ARE SHOWN THUS


NEWBURYPORT
18
19
HAVERHILL
20
LAWRENCE
LOWELL
XIV
17
GLOUCESTER
XV
BEVERLY
RC
SALEM
16
WOBURN
MELROSE
15
LYNN
MEDFORD
SOMERVILLE
MALDEN
REVERE
EVERETT
CHELSEA
WALTHAM
XIII
NEWTON
14
BOSTON
CAMBRIDGE
XII
XI
MARLBOROUGH
13
VI
7
6
QUINCY
VII
12
BROCKTON
VIII
XVI
ATTLEBOROUGH
X
9
TAUNTON
IX
TS
10
NEW
BEDFORD
11
FALL
RIVER
ENTS
SHOWN THUS ———

SOME NEGLECTED PHASES OF IMMIGRATION IN RELATION TO INSANITY.*

By A. J. ROSANOFF, M.D.,
Kings Park State Hospital, Kings Park, N. Y.

According to the thirteenth census of the United States, there were, on January 1, 1910, 188,874 white persons of known nativity in institutions for the insane and feeble-minded; of these, 55,343, or 29.3 per cent, were foreign born; 109,538 were native born of known parentage; and of these, 33,599, or 30.7 per cent, were of foreign or mixed parentage.

The figures given for the state of New York are even more striking. There were, on the same date, 33,380 white persons of known nativity in institutions for the insane and feeble-minded; of these, 13,814, or 41.4 per cent, were foreign born; 17,103 were native born of known parentage; and of these, 8278, or 51.0 per cent, were of foreign or mixed parentage.

It is evident from these figures that immigration in relation to insanity presents economic problems of considerable importance; but of far greater importance are the problems of eugenics suggested by them. For, turning again to the census statistics, we find that, in the United States as a whole, during the ten years from 1900 to 1910, the native born of native parentage, among the white races, increased by 20.8 per cent, while the native born of foreign or mixed parentage together with the foreign born increased by 24.7 per cent. In the state of New York, during the same period, the native born of native parentage increased by 13.2 per cent, while the native born of foreign or mixed parentage together with the foreign born increased by 33.2 per cent.

Thus, in the United States as a whole, the native-born population of foreign or mixed parentage together with the foreign born constituted among the white races, in 1900, 38.7 per cent, and in 1910, 39.5 per cent. In the state of New York they constituted, in 1900, 60.2 per cent, and in 1910, 64 per cent.

---

* Delivered at the seventy-first annual meeting of the American Medico-Psychological Association, Old Point Comfort, Va., May 11-14, 1915.

In other words, the rate at which the population of foreign birth or parentage is increasing, especially in the state of New York, is greater than that of the native population; and it has been pointed out that, should such conditions continue to prevail, the racial composition of the population will gradually change and eventually become more or less like that of the "new immigration"; the prevailing elements, instead of being Dutch, English, Scotch, German, Irish and Scandinavian, will be Italian, Slavonic and Hebrew.

From the psychiatric standpoint it is especially important to know whether or not among the immigrant races insanity, feeble-mindedness and other neuropathic conditions are more prevalent than among the older white population of the United States.

Although this question has already been made the subject of intensive statistical studies, it can by no means be said as yet to be definitely disposed of. The object of this paper is to present an examination of certain data which have but recently become available and which have been, perforce, neglected in studies made heretofore.

§ 1. METHODS HITHERTO EMPLOYED IN COMPARING THE INCIDENCE OF INSANITY IN FOREIGN- AND NATIVE-BORN ELEMENTS OF THE POPULATION.

Two methods have hitherto been employed in comparing the incidence of insanity in foreign- and native-born elements of the population.

In the first of these the number of institution inmates in relation to the population at large on any date arbitrarily selected for the enumeration serves as the basis of comparison. This method, employed by Koren,[1] Salmon,[2] and others, seems to show that the foreign-born population, with the exception of but two or three individual races, has a higher incidence of insanity than the native-born population.

Thus, by calculation of the data furnished by the thirteenth census, we find that on January 1, 1910, there were in the institutions for the insane and feeble-minded in the United States 195.3 native-born and 414.7 foreign-born persons per 100,000 of the total native- and foreign-born population respectively. Similarly, in the state of New York. there were 313.7 native-born and 506.1

foreign-born institution inmates per 100,000 of the total native- and foreign-born population respectively.

Objection is made to this method on the ground that it does not fully reveal the contrast in incidence of insanity which exists between the native- and foreign-born population: "There were 2737 foreign-born patients among the first admissions to the New York state hospitals during 1911, and in that year more than 28 per cent of all foreign-born patients admitted were returned to their homes abroad. This greatly reduces the number of foreign-born patients remaining in public institutions" (Salmon).[2]

This method has also many other shortcomings which need not be discussed here beyond pointing out that they are so great as to have led to its general abandonment.

In the second method, the number of first admissions to institutions in a given year in relation to the population at large serves as a basis of comparison. This method has been employed by Pollock[3] and by Salmon,[2] both making use of the same material, namely, the statistics of first admissions to the state hospitals of New York for the fiscal year ending September 30, 1911. They have shown that the native born have furnished 46.4 first admissions and the foreign born 100.3 per 100,000 of their total population; that "the frequency of insanity among the foreign born throughout the state is, therefore, 2.19 times as great as among the native born"; and that "the rate of insanity among the foreign born of New York City is 2.48 times that of the native born."[3]

It is only fair to add, in this connection, that both these writers have recognized the error which results from not taking into account the differences in age distribution between the native- and foreign-born population groups. Salmon refers to it in the explanation which he offers for the great excess of insanity in representatives of the "old" as compared with those of the "new" immigration, while Pollock, writing in the early part of 1912, states: "No statistics of the age distribution of the population of the state at the time of the 1910 census are available. It is therefore impossible to calculate just what allowances should be made in determining the relative frequency of insanity among the foreign born."

The census data having since become available, it is now possible to eliminate largely, if not wholly, this source of error.

Table 1 shows the age distribution of the native- and foreign-born population in the state of New York, according to the thirteenth census; and Table 2 shows the absolute number of first admissions to the state hospitals and the number per 100,000 of the general population, during the fiscal year ending September 30, 1911, classified by nativity and by ages, according to the report of the State Hospital Commission.[4]

TABLE 1.—AGE DISTRIBUTION OF NATIVE- AND FOREIGN-BORN WHITE POPULATION OF THE STATE OF NEW YORK ACCORDING TO THE U. S. CENSUS ENUMERATION AS OF APRIL 15, 1910.

Age Groups.	Native.		Foreign born.	
	Number.	Per cent.	Number.	Per cent.
Under 15 years......	2,268,910	36.4	191,013	7.0
15 to 19 years........	649,255	10.4	182,629	6.7
20 to 24 years........	575,503	9.2	344,930	12.6
25 to 29 years........	488,931	7.8	368,870	13.5
30 to 34 years........	434,629	7.0	316,096	11.6
35 to 39 years........	405,317	6.5	291,520	10.7
40 to 44 years........	335,363	5.4	254,065	9.3
45 to 49 years........	284,133	4.6	211,716	7.7
50 to 54 years........	247,716	4.0	165,043	6.1
55 to 59 years........	173,560	2.8	117,235	4.3
60 to 64 years........	130,383	2.1	105,024	3.9
65 years and over....	235,491	3.8	178,845	6.6
All ages, including those of unknown age	6,237,570	100.0	2,729,272	100.0

TABLE 2.—FIRST ADMISSIONS TO NEW YORK STATE HOSPITALS FOR THE YEAR ENDING SEPT. 30, 1911, CLASSIFIED BY NATIVITY AND BY AGES.

Age Groups.	Total Number.		Number per 100,000 of the general population.	
	Native.	Foreign.	Native.	Foreign.
Under 15 years............	13	1	0.6	0.5
15 to 19 years..............	169	113	26.0	61.9
20 to 24 years..............	302	305	52.5	88.4
25 to 29 years..............	332	343	67.9	93.0
30 to 34 years..............	326	321	75.0	101.6
35 to 39 years..............	341	284	84.1	90.7
40 to 44 years..............	294	305	87.7	120.0
45 to 49 years..............	274	223	96.4	105.3
50 to 54 years..............	239	205	96.5	124.2
55 to 59 years..............	181	141	104.3	120.3
60 to 64 years..............	118	133	90.5	126.6
65 years and over..........	322	344	136.7	192.3
All ages, including those of unknown age	2923	2737	46.9	100.3

It is to be noted that in both the native- and foreign-born groups the incidence of certified insanity increases sharply with advancing age; it is also to be noted that the population under 15 years of age, which furnishes scarcely any hospital admissions, constitutes for the native population at large no less than 36.4 per cent and for the foreign born only 7.0 per cent of the whole; and, furthermore, the reverse is true for the higher age groups which furnish the greatest relative numbers of hospital admissions; the age groups of 50 years and over constitute for the native population at large only 12.7 per cent, and for the foreign born no less than 20.9 per cent of the whole.

These statistics, if analyzed without providing correction for the differences in age distribution, show that the native population, on the whole, furnished 46.9 and the foreign born 100.3 first admissions per 100,000 of their general population. But simple calculation shows that, upon eliminating the error resulting from the differences in age distribution, the relative corrected figure for the native population becomes 74.1.

In other words, the foreign born furnish on the average, age by age, not 2.19 times as many first admissions as the native, as asserted by Pollock and repeated by many others, but only 1.35 times.

Another source of error, also referred to by the above-mentioned writers, lies in the difference between the native- and foreign-born population as to percentage of town dwellers. Everyone knows that an urban environment brings to the surface the neuropathic tendencies of a community far more fully than a rural environment. Thus, according to the thirteenth census, the white native population dwelling in rural districts, 38,189,868 in number, furnished 15,263 admissions to insane hospitals during 1910, which makes a rate of 40 per 100,000; while the white native population dwelling in urban districts, 30,196, 544 in number, furnished 22,257 admissions, which makes a rate of 73.7 per 100,000, or 1.84 times as great as the rate for rural districts.*

The census also shows that in 1910, 26.6 per cent of the native population and only 9 per cent of the foreign-born population in the state of New York resided in rural districts. Calculating again, to eliminate the error resulting from this difference in environment, we find that the figure representing the relative number of first admissions per 100,000 of the native population now rises to 80.8. Accordingly, the apparent excess of incidence of insanity among the foreign born is again reduced; the rate is now but 1.24 times as great as that for the native population.

---

*The Census Bureau, for purposes of discussion, has defined urban population as that residing in cities and other incorporated places of 2500 inhabitants or more, and rural population as that residing outside of such incorporated places.

But is even this figure to be accepted without qualification? Who knows what allowance must be made for the heavy stress which is entailed in the migration and in the subsequent process of adjustment to new conditions and more exacting standards of living? It would seem that any excess in the incidence of insanity that can properly be attributed to the influence of this special stress is not to be regarded as evidence of a more prevalent inherent tendency among foreign-born persons to develop neuropathic manifestations.

Again, who knows what further allowance for less obvious sources of error would have to be made before the statistics of the foreign-born insane could be rendered strictly comparable with those of the native insane?

It is, indeed, an open question whether, after all allowances have been made, any material difference as to incidence of insanity would still be found between the native- and foreign-born population groups. But in practice, we could never be sure of having made all necessary allowances and of having eliminated all possible sources of error; the question is, therefore, one that is hardly susceptible of direct investigation; it can, however, be approached indirectly.

Such an indirect investigation will be undertaken in the next section of this paper, while the remainder of this section will be devoted to a consideration of the effects of another migration, one affecting the native American population alone, namely, the migration from the eastern to the western coast.

According to the thirteenth census, there were in the state of California, on the date of enumeration, 903,996 persons who were born in California and 79,992 who were born in New York.

According to the report of the California State Commission in Lunacy,[5] there were among the patients admitted to the hospitals for the insane in that state, during the biennial period ending

June 30, 1910, 639 who were native Californians and 147 who were natives of the state of New York.

By calculation, we find that the Californians have contributed 70.7 admissions per 100,000 of the general population and the New Yorkers 183.8, or 2.60 times as many, a showing even more unfavorable than that made by the foreign born in the state of New York.

Are New Yorkers as much more prone to insanity than Californians as these statistics seem to indicate? Most probably not; it seems far more likely that we have here but another instance of effects produced by a distant and difficult migration actuated by economic forces and altering the normal age distribution, percentage of urban dwellers, various conditions of existence, etc.

§ 2. Comparison of the Incidence of Insanity in Native- and Foreign-Born Elements of the Population by an Indirect Method.

Probably more than two-thirds of all cases of insanity develop on a hereditary basis. As stated in the introductory remarks, the question of the degree of prevalence of insanity in the foreign-born population derives its importance mainly from its bearing on eugenics; should immigration continue in the future as in the past, or should it increase, as it may do, then the racial composition of the state of New York will gradually change and eventually become more or less like that of the now foreign-born portion; and if this foreign-born portion shows not a seeming but a real excess in proneness to mental disease, then the future native population may be expected to show the same excess.

Some have gone so far as to accept in uncorrected form the statistics of the first generation of immigrants and to predict without qualification that the same excessive rate of insanity will prevail in their subsequent generations. It would seem to us that a matter which is of such great moment to millions of people can hardly be thus taken for granted; it would certainly seem more proper, if need be, to withhold final judgment until one based upon an actual examination of trustworthy data could be offered.

According to the thirteenth census, there were, on the date of the enumeration, in the state of New York, 3,364,516 native-born persons of native parentage,* 2,241,837 native-born persons of foreign parentage,† and 765,411 native-born persons of mixed parentage.

From the statistics furnished by the State Hospital Commission,[4] it appears that during the fiscal year ending September 30, 1911, there were 5700 first admissions to the civil state hospitals, classified as follows:

Native born, of native parentage	1224
Native born, of mixed parentage	624
Native born, one parent native, other unknown	22
Native born, one parent foreign, other unknown	53
Native born, nativity of both parents unknown	218
Native born, both parents foreign	782
Total native born first admissions	2923
Nativity of patients unknown	40
Foreign born	2737

Simple calculation shows that the native born of native parentage contributed 34.6 first admissions to the state hospitals per 100,000 of their general population, while the native born of foreign parentage contributed 34.9,—practically the same proportion.‡

In other words, whatever might be said of any undue proneness towards mental disease in the foreign-born population, the first generation of their descendants shows no greater prevalence of insanity than their contemporaries of native parentage; the much-feared menace of an increased incidence of insanity in the future generations, as resulting from immigration, is shown by these figures to be not real but imaginary.*

---

* In this number are included all negroes, whether of native or foreign parentage, the great majority being probably of native parentage.

† Not including those of mixed or of unknown parentage.

‡ It should be added that here again the age distribution of the two groups considered is not the same, the difference being probably such that a correction would produce a showing in favor of the native parentage group. But, on the other hand, it is equally probable that the proportion of town dwellers is greater in the foreign parentage group, and here a correction would produce a showing in their favor. Unfortunately, data are not available for an exact correction; as the two disturbing factors are probably slight and produce errors in opposite directions it is clear that they must to some extent neutralize each other and that any remaining error can hardly be of any considerable magnitude.

§ 3. The Economic Aspect.

The economic aspect, though not comparable in importance with that of race hygiene, is, nevertheless, as stated in the beginning, worthy of consideration.

Granted that the immigrant population shows no greater proneness to mental disorders than the native population, yet the fact remains that nearly half the insane and feeble-minded in institutions in the state of New York are of foreign birth. The liability of the state for the care and maintenance of any number, great or small, of foreign-born insane can by no means be taken for granted as is that for the care of the native-born insane.

---

* Since the above was written, the special report of the thirteenth census on the insane and feeble-minded in institutions, by Joseph A. Hill, has appeared.[8] Several pages in it are devoted to a consideration of this question of the relative frequency of certified insanity in the native-born population as classified according to parentage. Curiously enough, however, no distinction is made there as between native-born persons of foreign parentage and those of mixed parentage, these groups being throughout considered as one under the heading of "native-born of foreign or mixed parentage." One would, indeed, hardly suspect that, for the purpose in view, it would be necessary to make such a distinction; yet the facts, at least as revealed by New York State statistics, show that the native born of mixed parentage constitute a population group which differs strikingly from both the native born of native parentage and those of foreign parentage, having contributed more than double the proportion of first admissions of either of the latter groups, namely, no less than 81.5 per 100,000 of the population at large! Manifestly, it cannot be proper to add this group either to that of native or of foreign parentage, and it is merely to make this point that these statistics are referred to here; it would be out of place here to discuss at length this rather remarkable fact. It might, however, be suggested, as a possible explanation, that mixed marriages are probably more frequent among the less conservative of those who go into the American "melting pot." Often enough this freedom from undue conservatism acts as a leaven of progress and beneficial reform; but every psychiatric clinician knows also that in many cases it is but a phase of lowered inhibition which is so characteristic of neuropathic constitutions. Accordingly, we will not be accused either of too great a leaning toward conservatism or of taking a stand against the principle of the "melting pot" for venturing the opinion that it is this lowered inhibition, in so far as it underlies a certain proportion of mixed marriages, that accounts, partly, if not wholly, for the excessive frequency of certified insanity among the offspring resulting from such marriages.

Here the question arises, What can serve to establish such a liability? Since the issue is purely a financial one, the answer is plain: the liability of the state for the care and maintenance of the foreign-born insane can be established only by a proportionate contribution to the wealth of the community resulting from the labors of the foreign-born population; and the special object of this section becomes to make, if possible, an estimate of that contribution.

It is now generally recognized that at least the modern migrations to the United States are governed largely by economic conditions. Accordingly, when a state or a large division of the country becomes the goal of a large popular migration it is but reasonable to assume that it affords valuable opportunities which are not to be found in the places from which the migration proceeds. Yet not all are attracted by these opportunities sufficiently to sever old ties and to deliberately impose upon themselves years of great hardship. It must require a special amount of ambition, enterprise and faith to lead one to thus leave his home in quest of greater happiness hoped for in a distant land, among strange people, in the uncertain future. These considerations, however, suggest but a promise of achievement; for the extent of its fulfilment we must turn again to the census statistics.

The states of the union may be divided into four groups according to their proportion of foreign-born population. *Group 1,* wherein each state has a foreign-born population of less than 10 per cent, comprises the states of Alabama, Arkansas, Delaware, Florida, Georgia, Indiana, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Missouri, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; this group as a whole has a foreign-born population of 3.4 per cent. *Group 2,* wherein each state has a foreign-born population of between 10 and 20 per cent, comprises the states of Colorado, Idaho, Iowa, Maine, Nebraska, Ohio, Oregon, Pennsylvania, South Dakota, Utah, Vermont, and Wyoming; this group as a whole has a foreign-born population of 15.8 per cent. *Group 3,* wherein each state has a foreign-born population of between 20 and 30 per cent, comprises the states of Arizona, California, Connecticut, Illinois, Michigan, Minnesota, Montana, Nevada, New Hampshire, New Jersey, North Dakota, Washington, and Wisconsin; this group as a whole has a foreign-born population of 23.5 per cent. *Group 4*, wherein each state has a foreign-born population of over 30 per cent, comprises the states of Massachusetts, New York, and Rhode Island; this group as a whole has a foreign-born population of 30.6 per cent.

For each of these groups of states we have calculated the annual per capita wealth production by dividing the sum of the gross values of all the agricultural, mineral, and manufactured products, as given in the census, by the total population. The figures thus obtained are, for Group 1, $216.29; Group 2, $390.09; Group 3, $405,58; and Group 4, $427.93.

Undoubtedly the very fact, among others, of peculiar age distribution of the foreign born, with the small proportion of children and the large proportion of able-bodied adults, accounts for this seemingly superior wealth-producing capacity. However this may be, it would seem clear that the cost of maintaining the foreign-born insane is but a minute fraction of the wealth increment brought to the communities by the foreign-born population; and we may say with Waldman,[7] "Those who are alarmed at the expense to which the state is put by the foreign-born insane regard only the debit side of the ledger and fail to consider the credit side." *

§ 4. SUMMARY AND CONCLUSIONS.

It is a fact that practically everywhere in this country the foreign-born population furnishes a much larger proportion of insane hospital inmates than the native population.

The main object of this study is to determine whether this fact is due to a greater inherent tendency among the foreign born to develop mental disease or to some other conditions.

---

* The considerations in this paper would naturally argue against a general policy of restriction of immigration; but they are not to be construed as arguing in favor of relaxing the efforts of keeping out all insane and otherwise mentally defective immigrants. On the contrary, whether insanity be relatively frequent or rare among immigrants, the welfare of this country demands that insane persons be prevented from entering and remaining in it and that the facilities for their detection and deportation be perfected and increased rather than reduced.

It is found that the difference in age distribution which exists between the native- and foreign-born parts of the population accounts largely but not wholly for the difference in the proportion of insane hospital inmates.

It is found that this difference is further, but still not wholly, accounted for by the greater proportion of town dwellers among the foreign born than among the native population.

Upon eliminating the errors resulting from these disturbing factors there remains but a slight difference between the native- and foreign-born parts of the population in the incidence of certified insanity.

It is thought that this remaining slight difference may be accounted for by the heavy stress entailed in the migration and in the subsequent process of adjustment to new conditions and more exacting standards of living, and, possibly, by other, less obvious, disturbing factors.

Incidentally, it is shown that the migration of native American masses of population from the eastern to the western coast has produced a similar effect in creating a seeming increase in the incidence of certified insanity; natives of the state of New York who have emigrated to California have contributed proportionately 2.60 times as many admissions to the state hospitals there as the native Californians, a showing even more unfavorable than that made by the foreign-born population in the state of New York.

Owing to the practical impossibility of eliminating all sources of error in a direct comparison of the insanity rates in the native- and foreign-born parts of the population, an attempt is made to make the comparison by an indirect method.

Insanity being, for the most part, transmissible by heredity, any real difference in its incidence which may exist between the native and foreign-born parts of the population should be as patent in the offspring as in the parents; in other words, it should be as evident between native-born persons of native parentage and native-born persons of foreign parentage as it is between the native and foreign born themselves.

Calculation shows that in the state of New York in the fiscal year ending September 30, 1911, the native born of native parentage contributed 34.6 first admissions to the state hospitals per

100,000 of their general population, while the native born of foreign parentage contributed 34.9,—practically the same proportion.

Turning to a consideration of the financial aspect of the problem, it is assumed that the liability of the state for the care and maintenance of the foreign-born insane can be established only by a proportionate contribution to the wealth of the community resulting from the labors of the foreign-born population.

The states of the union, divided into four groups according to their proportion of foreign-born population, show that the annual per capita wealth production is in close correlation with percentage of foreign-born population, as follows:

Groups.	Foreign-born population.	Annual per capita wealth production.
1	3.4%	$216.29
2	15.8%	390.09
3	23.5%	405.58
4	30.6%	427.93

The cost of maintaining the foreign-born insane is but a minute fraction of the wealth increment brought to the communities by the foreign-born population.

The following conclusions are drawn:

There is no evidence to show that there is a greater proneness toward mental disease in the foreign-born than in the native population.

The much-feared menace of an increased incidence of insanity in the future generations, as resulting from immigration, is not real, but imaginary.

"Those who are alarmed at the expense to which the state is put by the foreign-born insane regard only the debit side of the ledger and fail to consider the credit side."[1]

REFERENCES TO LITERATURE.

1. John Koren: *Insane and Feeble-Minded in Hospitals and Institutions.* Special Report, Bureau of the Census, Washington, 1906.
2. Thomas W. Salmon: Chapter entitled *Immigration and the Mixture of Races in Relation to the Mental Health of the Nation,* in *Nervous and Mental Diseases,* edited by William A. White and Smith Ely Jelliffe, Philadelphia, 1913.

3. Horatio M. Pollock: *A Statistical Study of the Foreign-Born Insane in the New York State Hospitals.* New York State Hospital Bulletin, Special Immigration Number, April, 1912.
4. *Twenty-third Annual Report of the State Commission in Lunacy.* Albany, N. Y., 1912.
5. *Seventh Biennial Report of the State Commission in Lunacy.* Sacramento, Cal., 1910.
6. Joseph A. Hill: *Insane and Feeble-Minded in Institutions.* Special Report of the U. S. Census. Washington, 1914.
7. Morris D. Waldman: *The Alien as a Public Charge, with Particular Reference to the Insane.* Paper read before the Thirteenth New York State Conference on Charities. Published in the Annual Report of the State Board of Charities for the Year 1912, Vol. 1, Albany, N. Y., 1913.

OPTIC NEURITIS AND THE COLOR FIELDS IN THE DIAGNOSIS OF SYPHILIS, NEURASTHENIA, HYPERTHYROIDISM, DEMENTIA PRÆCOX, MANIC-DEPRESSIVE INSANITY, AND THIRD GENERATION SYPHILIS.*

By HAYWARD G. THOMAS, M. D., Oakland, California.
Professor of Ophthalmology, Oakland, Cal., College of Medicine, Visiting Oculist, Alameda County Hospital.

In presenting this paper I am mindful that it is taking a bold plunge. I am aware of the fact that it will be difficult for us to readjust ourselves to a new classification of the optic disc, for the accepted ideas of the appearance of the normal and abnormal optic discs will receive something of a shock.

The optic nerve is the one exposed nerve in the body that we can see and study directly; and, as it is so closely identified with the nervous system that slight changes can be noted in it, it behooves us to give it more attention than it has hitherto received. In fact, the phases of which I will speak have been almost entirely neglected. If we consult the works on ophthalmology and ophthalmoscopy, we will notice that only the more marked forms of neuritis are pictured and described, and many illustrations are given as examples of normal discs which I claim are distinctly abnormal. The minor and lesser degrees of neuritis are entirely overlooked and classed as normal. Because there was no other class to put them in, nerves which showed no changes in the size and proportion of the vessels, no swelling above the borders, and which obtained practically normal vision with lenses, were classed as normal; and for years, though noting their appearance and putting a question mark on the word normal, I have so classed them. The first point to get clear in our mind is just what the normal disc is, and, secondly, what an optic neuritis is, of the mild, non-inflammatory character to which I refer in this paper.

The normal disc or papilla has a well-marked border, round or oval, and with or without pigment from the choroid. The body is pink or rose with the " shot-silk " sheen, and with a central or nearly central excavation or depression, the physiological excavation or cup, or porus opticus, abbreviated for convenience to P. O. This normally may be from one-fourth to one-third of the diameter of the disc and shows the vessels dipping down into its depth along one edge, and in the majority of cases, in the depth of the excavation, cup, or P. O., are minute dark spots, the markings of the lamina cribrosa. On the nasal side the nerve fibers may be slightly above the retinal level as they emerge and spread out to form the retina. There are varied forms of the normal disc in the placing of the cup, or P. O., and in the shape of the latter, but I believe that every disc without a P. O. or with a faintly marked one, is abnormal and should be so considered. It is evidence of a neuritis, which, progressing, causes the P. O. to disappear, the color of the disc to change from its rose pink to a dull brick red, or, as is more often the case, to a lighter hue, giving it a doughy appearance.

---

* Preliminary report read before the Alameda County Medical Association, December, 1912. Submitted for publication August, 1914.

In the more active forms we get the fiery red color, with slight swelling and blurring of the borders, or the choked disc, or the large button-like papillitis, with or without hemorrhages.

In some of the older, chronic, severe cases, we find a level disc with the edges clouded and obscured, the color of the disc blending in with that of a blurred retina. In such cases we have a well-marked cerebral syphilis.

Here are presented seven cuts, diagrammatic only, representing various stages in optic neuritis.

No. 1 is one illustration of a normal porus opticus. This may be round or oval or oblong, but this is representative of size.

No. 2 is an illustration of an already partly filled excavation, pathological.

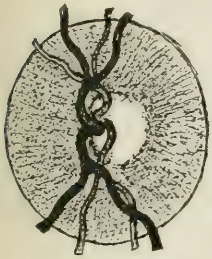
No. 3 is filled up and flat, color may be pale yellowish in cast, or a deeper red than normal. In either case the appearance suggests a doughy consistency, the pale yellow suggesting the appearance of " raised " dough ready for the oven; no sheen to it. The red forms are also dull, ranging from light brick to the same shade as the retina.

No. 4 is also filled. It is of the variety where the vessels have divided before leaving the cup. It is not physiological to have no cup; this variety has the appearance of sticks sticking in the mud, because of a greater amount of material deposited.

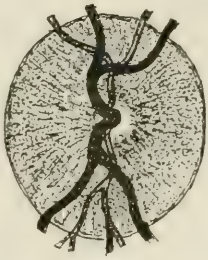
No. 5 shows a slight elevation above level of the retina all around; no P. O.; vessels stand out at meeting point.

No. 6 shows a distinct swelling of the disc, a papillitis of the books.

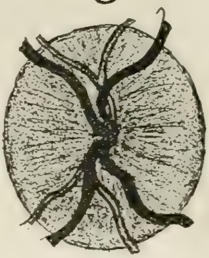
1



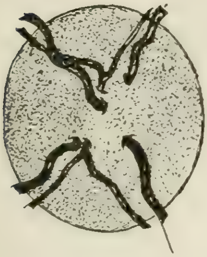
2



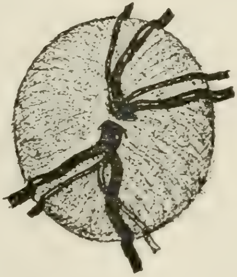
3



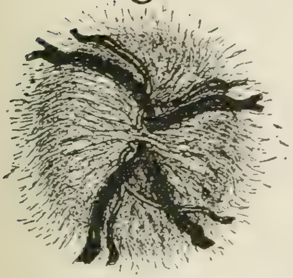
4



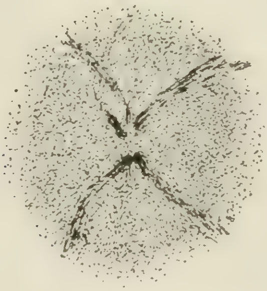
5



6



7



No. 7 shows a disc with blurred edges, no P. O., and general hazy outline; a cloudy œdema of the papilla.

These are the ordinary types and Nos. 2, 3, 4 are classed as normal. All conditions without actual swelling are usually referred to as "auto-intoxication," nephritis, gastro-intestinal complications, etc. I have many of all these types and have noticed them changing from 1 to 5. Under treatment, I have seen the reversal through the types, from 5 to 1.

These changes were also simply accidentally noticed at first, as we were not looking for them and had no theories on the subject. It was noticed in certain cases that there was no P. O., and some of the discs were of the fiery red character. After some months' treatment the patients were referred back for re-examination, and in one case after another it was noticed that an excavation had appeared. This led to a more careful watching of all cases, arranging for periodical eye examination. This takes this question out of the realm of theory and into that of fact.

As to color fields, I can find nothing in any of the text-books, except Cushing on brain tumor, and on diseases of the hypophysis, where there is more than a reference to the fact that there are color fields, and only the contracted fields in atrophy of the optic nerve are given. One writer, Dr. Breuner, of Cleveland, in the *Ophthalmic Record,* of September, 1911, gave the complete contracted color fields in a case of syphilis with homonymous hemianopsia.

Now a few words as to the taking of the color fields:

The perimeter used should be of the self-registering type so that the patient cannot see the hand move the colors, though the self-registering portion is only useful as a guide to the meridians. Daylight is necessary and the room should be so arranged that its light coming from behind the patient brightly illuminates the color.

Every precaution should be observed to avoid errors and especial care should be taken to prevent retinal fatigue, frequent rest intervals being taken. In meridians where there is a marked contracture the tests are repeated several times, the operator switching back to these meridians, not permitting the patient to become aware of the duplication of the tests. An assistant records the degrees as they are called off by the operator, as the patient recognizes the color. When all twelve meridians are finished for the five colors, the recorded figures are read off to an assistant, who marks the chart and draws the colors in.

The characteristic color fields which will be discussed later showed sector-like contractures with interlacing of the boundaries of the various color fields.

The investigation of these anomalies of discs and color fields owes its origin to some cases of suspected brain tumor. These showed discs presenting the characteristic neuritis described in Nos. 6 and 7, and their color fields presented the characteristic contracture and interlacing. They were examined exhaustively by internists and neurologists, X-rayed, etc., but all proved to be cerebrospinal syphilis.

In the enumeration of various agents that contribute to the contraction and interlacing of color fields, we find brain tumor, brain abscess, abscess of the accessory sinuses, especially the sphenoid, nephritis, diabetes, various toxic agents, lead, tobacco, etc. Syphilis is the greatest of them all.

This experience led to the examination of other patients suffering from chronic headaches, nervous symptoms, neurasthenia, etc., and all showed the same marked contraction and interlacing of the color fields, the same type of discs, *i. e.,* without P. O.'s, though few had swelling, or marked changes in the blood vessels.

The first color fields were taken early in 1911, and during that year I took not over a dozen, but in all the characteristic cases cerebrospinal syphilis was proven and all were promptly relieved by vigorous anti-syphilitic treatment. Dr. Jau Don Ball, the neurologist, became interested in the color fields and had a number of neurasthenics examined and these, too, fell under the same category, namely, syphilis. It then became a routine measure to examine all patients who had a mild neuritis, and who came with a history of headaches, nervousness, inability to use the eyes for any length of time, etc.

These cases from which we have drawn these conclusions are of a large class, in which such a thing as syphilis was never before suspected. They range from very early childhood to old age. Neurasthenia exists in children as well as in older people.

The question will be asked as to the proof that these cases are syphilitic. At first, the Wassermann or Noguchi tests were made to prove the diagnosis, but in almost half the number a negative report was returned, though from a clinical point of view the patients were very positively syphilitic. By clinically positive, I mean when the patients would present tender shins and sternums, concave scapulæ, history of crises, Romberg's sign, abnormal reflexes, a family history showing still-born children and miscarriages, etc., a history of chronic headaches, nocturnal bone pains, etc., and present a mild neuritis of the optic nerve and the characteristic contracture and interlacing of the color fields.

I do not wish to underrate the value of a positive Wassermann or Noguchi test, but to emphasize most positively the absolute worthlessness of a negative report. When one examines a large number of cases, take, for instance, a family of heredo-syphilitics, now every member of the family must have syphilis, all have the same neuritis, the scaphoid scapulæ, deranged reflexes, etc., all will show in a greater or lesser degree the same lack of stamina, the lowered resistance. Half of these may show positive Wassermann, half negative.

If we can clinically recognize syphilis, and I claim now we surely can, the value of a positive Wassermann is simply corroboration, and a negative report is valueless. It is a prevailing idea among practitioners that a negative report settles the question, and the laity is assured that it is a fact just the same as the great majority of the laity are assured that one dose of salvarsan is a cure. Again after treatment a negative Wassermann convinces a great many that a cure has been accomplished. Who knows now when syphilis has been cured? And how can it be proven? From my experience in the last two years I believe we are some years yet from the knowledge.

As a class, the majority of these patients are of varying degrees of neurasthenia, from the mild type of simple ocular neurasthenia to the graver general type and on up to general paresis. A very large number are of the class who are never really sick and never really well and who apologize for hinting that they do not have the sense of well-being and vim that a really well person ought to have.

The next class are really neurasthenic to a degree that keeps them ailing most of the time, sometimes with one symptom, then with another. A number have been under treatment for over twenty years, always neurasthenic, but diagnosed with something new by every physician whom they have consulted—naturally enough with their varying symptoms. I have found quite a large number who have undergone various and sundry abdominal operations, unnecessarily and with no beneficial results, because what was sought for was not found, the cause being in all these cases syphilitic crises. These cases are not few and the operations many.

One had an operation for gall stones, after suffering with pain in that region for years, and there were no gall stones; later the appendix was removed, and still there was trouble. The onset of a severe optic neuritis brought about the diagnosis. Another had four abdominal operations and is growing steadily worse. Another reports seven and another five, etc. I am not in the least trying to throw any discredit on abdominal surgery, for there is need of it aplenty, but I do speak for a better method of diagnosis rather than operation without adequate examination.

In reference to this subject, the inflammatory conditions of syphilis are very little understood. Take some of these crises, for instance: given the intense pains, the leucocytosis, the temperature, and we have the ideal setting for surgical procedure, yet it happens not infrequently that without further evidence, operations are performed, to find no pus at the seat of pain, or anywhere else. Immediately the temperature drops, the leucocytosis and pain disappear, and only an exploratory incision remains. This has recently been the case in a known syphilitic, who had all the classic symptoms of appendicitis. The crisis came on, with the leucocytosis, fever, etc., and though protest was made against operation, an incision was made to find no appendicitis; wound sewed up, and the symptoms all disappeared. Modesty forbids me to mention the name of the man who has opened mastoids under similar conditions.

The study of the optic nerve opens wide a window through which we can see a new army of heredo-syphilitics, who have hitherto been overlooked, and at this point I desire to say that by heredo-syphilis I mean syphilis of the second, third, and fourth generations; possibly more. I am well aware that syphilis beyond the second generation is not credited, but there is indisputable proof for its existence in the third and fourth. Marshall, in his excellent and exhaustive new work on syphilology and venereal diseases, gives a few pages to its consideration, but there is not much to guide in the discovery of the cases. He quotes Hutchinson as not believing in third generation syphilis. A study of the eye and of the nervous system will convince any clinician of the existence of third generation syphilis and more.

Graves[1] of St. Louis has discovered another syndrome which also proves the case—the scaphoid scapula. There he shows syphilis for a number of generations, and my work with the optic nerve checks up exactly with his with the scaphoid scapula, as we have observed these scapulæ in our clinics at the Oakland College of Medicine. Families with optic neuritis have scaphoid scapulæ along with other evidences of syphilis of the nervous system.

I have in years past often asked, " In what form does syphilis of the third generation show itself ? " only to be answered by clinicians, " I do not know."

The meager details in regard to third generation syphilis might well dismay the investigator, but from the revelations of the last year which have shown up so many families with undoubted second generation syphilis in the parents, and the children of these parents showing the optic neuritis, the scaphoid scapulæ and the various nervous phenomena which accompany this condition, it will be at once seen that there is an immense army of third and more generations. A new classification of disease as to etiology will be needed. An extremely small percentage have Hutchinson teeth, rhagades, and keratitis interstitialis, the vast majority showing the various dystrophies, as nervous phenomena and disorders of nutrition and development due to defective innervation and circulation ; for example, the saber shins, scaphoid scapulæ, disease of the circulatory system, of the digestive tract, of the respiratory tract, enlarged and diseased tonsils and adenoids. Many of these patients we find with ocular neurasthenia and as they come to the clinic we ask for all members of the family and in them we find the same stigmata. Inquiring into the family history, we find a chapter of miscarriages, still-born children, or infants dying soon after birth, and of those living we find various nervous troubles gradually developing. In fact, we find the majority of these heredo-syphilitics in infancy suffering from marasmus, striving hard to live ; as little children they have more weaknesses than they ought. Marshall quotes Parrot and Kassowitz as saying that nearly all children affected with heredo-syphilis become rachitic. Fournier thinks Parrot goes too far, and Gaucher recently gave his opinion that " heredo-syphilis alone produces rickets."

---

[1] W. W. Graves, St. Louis, Scaphoid Scapula, Med. Record, May 21, 1910.

As the children grow up we notice that they are not of the most robust—they would check up physically below par—lots of healthy-looking youngsters among them, but put them to tests and we find these are the ones that tire out easily; the endurance is not there.

Marshall[2] gives the following requirements for evidences of syphilis of the third generation:

1. Presence of acquired syphilis in grand parent (first generation).
2. Presence of undoubted syphilis in children of the second generation.
3. Presence of syphilis in children of the third generation.
4. Absence of acquired syphilis in either parent.
5. Absence of reinfection of the heredo-syphilitic mother.
6. Absence of the intervention of another syphilitic genitor.
7. Absence of acquired syphilis in the child.

Marshall quotes the latest statistics on the subject, quoting Fournier who has collected a large number of cases which fulfil the conditions.

Now when one speaks of the statistical frequency of syphilis he is instantly open to the attack that everything he sees is syphilis. I will not discuss that phase of the question now or at any other time, but quote Marshall and Fournier on the question.

Marshall:

> The reason for so much heredo-syphilis is because of insufficient treatment, and it is difficult to conceive that many families in "civilized countries" can altogether escape some trace of the taint.
>
> The reason why cases of transmission to the third generation are not frequently recorded is that the class of medical men who have the most opportunity for observing such cases—the family physicians—are not as a rule syphilologists.

In the introduction to Fournier's second edition, in an address to the Advisory Board for Army and Medical Services, on the question of "The Treatment of Venereal Disease and Scabies in the Army," in 1904, is the following:

Fournier:

> Malcolm Morris in the introduction to the second edition is quoted: "I have had 24 years teaching experience and I venture to say that there are few men going away from the hospital who know anything of the subject. And, therefore, I think the strongest recommendation to this committee is that there should be centers where men who are going to treat this disease should be taught. And the only way would be by establishing a hospital and

---

[2] Marshall, p. 339.

a school for this instruction in the big centers, to which civilian experts should be attracted as teachers. It is snubbed in every medical school in London and in the country. It is snubbed as a subject; it is not taught except as more or less incidentally and in an indifferent manner, just when it happens to come into different departments, such as the eye or throat. But as a whole it is not taught in the manner it should be to stamp out the national scourge. The only way that could be done would be by establishing centers where it is not only taught but studied."

Since this the Royal Commission in Venereal Diseases has been formed, and their 26th meeting has recently been held in London. This commission has gone into the investigation of the wide-spread ravages of syphilis and collecting all the data possible of the diseases produced by syphilis. The statistics quoted by the various men to date are startling.

I make the assertion which will hardly be disproven: *No case of syphilis has ever been really cured.* I know well what protest this will bring forth, but not from syphilologists. To be sure, the faithful treatment for two or three years with potassium iodide and mercury was seriously thought to be effective. It was to all external appearances, but I have in twenty-five years seen an immense number of these *cured* (?) men, and I have also seen their wives and children. I have known many of these men to die suddenly at middle age of syphilis of the brain, or of heart lesion, or suicide, or what not.

They did not always go into the nervous states—tabes, or paresis, etc. Now these men have transmitted the disease to their offspring, and I personally know men who had initial syphilis who were treated by average high grade medical men, who gave the regulation treatment of potassium iodide and mercury, all they could stand for three years, pronounced them well and permitted them to marry.

I have watched their wives and children and found optic neuritis, choroiditis, and retinitis, and all evidences of syphilis, and in the "cured" father evidences of advanced syphilis of the nervous system. What syphilologists of to-day will assert that a real cure was ever attained by the old methods? If that be so, and I assert that it is, it will account to-day for the world being full of heredo-syphilitics. There is no escape from this conclusion and in any large practice or clinic the truth of these assertions can be readily demonstrated, and the result will be as appalling to the investigator as it has been to the writer.

Those that come to the oculist come primarily because of defective vision, or headaches, with the latter predominating, or secondarily, they come because of inability to use the eyes for any length of time, perhaps only a few minutes at a time, with or without lenses. These are the cases which have tried the patience of the oculists for years. The principal relief that they obtain is to have a cycloplegic used and for a short time from the enforced rest given the ciliary muscle, they have immunity from the eye strain, only to have it return with the restored accommodation. Then follow the lacrimation and photophobia.

The majority of these patients run a very chronic course with exacerbations and remissions, but each exacerbation is a little more severe. Then the other symptoms of general neurasthenia appear and we soon have a confirmed neurasthenic to deal with. The accompanying symptoms usually are: easily induced fatigue, nervousness, perhaps insomnia, memory not as keen, often failing, increasing peevishness of temper. In cases of more severity and longer duration we find tender shins and sternums, Romberg's sign, and an exaggeration or alteration of all reflexes, elbow, wrist, knee, tendo achilles, plantar; various analgesias or anæsthesias; variations in the thermal sense, dizziness, growing deafness and tinnitus, occasionally labyrinthine deafness.

About half of these cases give a positive Wassermann, but many of those most positive, clinically, give a negative result.

We have observed these "neuroses" practically from infancy to old age, and in all gradations from light neurasthenia with hysteria, the so-called anxiety neurosis, the "tension neurosis" to the exaggerated helpless type of neurasthenics, the early tabetics, the aborted tabetics, dementia præcox, the maniacal depressive types, the hypomania cases, and we find the symptoms identical, differing only in degree. We find cases passing from neurasthenia to dementia præcox or hypo-mania. We find the same changes in the optic nerve differing only in degree with the variety of the cases, from light neurasthenia to the general paretic or maniacal depressive.

The color fields differ in contraction and interlacing only with the degree of the severity of the case, so that we cannot consider neurasthenia in any way a functional or psycho-neurosis.

The visible changes in the optic nerve are distinctly organic, not functional or imaginary, and are evidences of slight or serious changes in the brain or cord as the case may be. Consider for a moment in what the etiology of neurasthenia has consisted, classed as a functional or psycho-neurosis; nothing could be traced to anything tangible such as anatomy, physiology, or pathology; simply a nebulous affair; "psychoses," fear; nervousness, that bugbear of a word; nervousness must be born of something tangible, we do not grasp it out of the air; to continue: "business reverses." If everyone, big and little, who has had business reverses had neurasthenia, there would be few left free. Millions have been jostled, bruised, shaken, and scared in accidents of all kinds and some few have developed neurasthenia. Why? Let us forget the seventeenth century "vapors" and look to something clinically, anatomically, and pathologically positive as a cause for such a grave malady.

Marshall quotes such another equally weak reason ("exposure to cold") as being "the last refuge of a destitute etiology."

Another class of cases that we found constantly cropping up throughout our cases of heredo-syphilis was that of goiter. Quite a number of severe cases of hyperthyroidism led us to make especial examinations of such cases as to color fields, optic discs and nervous phenomena, and these all tallied up directly with the neurasthenias; the same color fields, the same variety of discs and the same variation of reflexes; in other words, similar in all respects; syphilis, with the added symptom of hyperthyroidism. This led to the routine examination of all cases and enlarged thyroid appeared in over 50 per cent.

In regard to the etiology of hyperthyroidism, there exists as much vagueness as in that of neurasthenia. In fact, there is only conjecture and there is no need for recapitulation on my part. Syphilis is hinted at as a remote or doubtful possibility.

Miss Helen Chambers reported recently in the London *Lancet,* July 19, 1913 (a digest of whose article appeared recently in the *Interstate Journal* and in the *A. M. A. Journal*) that as a result of the examination of five hundred cases of goiter, she found the inflammatory changes to be similar to those produced in tissues by infection with treponema pallidum. This comes perilously near to telling the truth.

Oppenheim quotes of hyperthyroidism:

> Dejerine quotes one case in which Basedow's disease was transmitted through four generations, and Brown found it in four brothers and sisters. But, as a rule, there is some other disease in the family and I have often found a predisposition for the vascular neuroses. The neuropathic tendency has often shown itself by signs of nervousness and hysteria, long before the onset of the disease.
>
> In such persons with such a predisposition exophthalmic goiter may develop without any other "distinct cause." It is still doubtful whether syphilis should be regarded as a cause.

I will record one case whose color field appears, in which will be seen an intense case of hyperthyroidism, and its rapid improvement under antisyphilitic treatment. The question of goiter alone will constitute a large chapter of which the future will take care.

It has been noted by certain German observers that cases of dementia præcox all had enlarged thyroids. Dr. Ball and I made a visit to the State Hospital for the Insane at Agnews, Cal., and examined thirty-five there. In all we found the typical optic discs, only showing more degenerative changes in the more severe cases, naturally. I took some color fields of the more intelligent and tractable, and found an exact reproduction of the fields of the neurasthenics. Dr. Ball noted the enlarged thyroid in all, scaphoid scapulæ in 85 per cent, and found recent syphilis in the others.

Dr. Ball will report two cases in his private practice, in which one who suffered for ten years with dementia præcox following neurasthenia is now cured and living with his family.

Another, a young lady whom I have known since birth and whose optic discs were as white as snow, the intense anæmic variety, is now fast recovering, and the discs are showing a pink tinge. I have examined cases in another private sanitarium and found the same discs as in these. Some nerves were intensely white, some half white, etc., as Tyson and Clark have so accurately described (*Archives of Ophthalmology,* May, 1912).

Tyson and Clark give the results of their study of 115 cases of dementia præcox. One hundred and nine cases were examined with the ophthalmoscope and the authors believe that they have found definite eye changes and symptoms which are distinctive of this " psychosis " and which establish an eye syndrome. They divide the fundus changes into three groups, as follows:

1. Congestion of the discs; hyperemia and oedema; dilated, dark colored veins; slightly contracted arteries and blurring of the edges of the discs, all varying in degree. These changes constitute a low grade of perineuritis of the optic nerve.

2. Congestion of the nasal side, with temporal pallor of the discs, dilated veins and contracted arteries.

3. Pallor of discs, dilated veins and contracted arteries. These changes constitute anæmia and a partial atrophy of the optic nerve. The more marked changes in the eye-syndrome were found in the more rapidly deteriorating types of dementia præcox.

The authors state that there is strong evidence that a potent toxin is responsible for the disc changes and believe the toxin to be primarily a vascular poison, and that its most probable source is in the auto-intoxication from the intestines or from the liver.

Among the cases which we have investigated are the atrophic rhinitis, ozœna, and sinusitis cases. The great majority of these cases have positive Wassermann findings, and all have the same discs, the same type of color fields, the same variety of abnormal reflexes, and have responded in the same prompt manner to rigid anti-syphilitic treatment.

Nearly all the cases of children with diseased tonsils and adenoids brought to the clinic for operation have the other stigmata of syphilis—the optic neuritis, the scaphoid scapulæ, the mild neurasthenia, the various dystrophies, disorders of dentition, digestion, etc., and especially the family history which can be directly traced to heredo-syphilis.

Arteriosclerosis is fairly generally believed now to be of syphilitic origin, especially the arteriosclerosis not of old age. The intestinal troubles which have been credited with being the seat of this trouble are, I believe, due more to syphilis, because the vast majority of our patients give a vague history of " stomach trouble," which in detail they describe as constipation, pain, indigestion, " gas in the bowels," etc.

All grouped together in the language of the patient as " stomach trouble," these troubles clear up under anti-syphilitic treatment.

Glaucoma I have long thought to be syphilitic in origin, the various methods for relief being of but temporary benefit, as I have stated in a previous article on " The Sub-Conjunctival Injections of Sodium Citrate for the Relief of Glaucoma," a local, if not a general, arteriosclerosis being responsible for the lighting up of the condition. Glaucoma is only a part of a general condition, as we frequently find associated a nephritis, an apoplexy, or an aneurism of some large vessel.

In reading that most excellent book, Marshall, "Syphilology and Venereal Diseases," the best and most up-to-date compilation in the English language on the subject, in my opinion, I am impressed by what he has to say on the subject: "Heredo-Syphilis," "Para-Syphilis," "Heredo-Para-Syphilis." "The term 'para-syphilis,' appears to be subject to various interpretations and includes the remote sequelæ of syphilis, such as tabes, dystrophic effects and predisposition to other diseases." Again, of lues heredetaria tarda: "It is doubtful if these cases often occur without any signs of heredo-syphilis in infancy, and they are mostly explained by the earlier symptoms having been either unrecognized or unrecorded." "Late heredo-syphilis is probably due to a great extent to insufficient treatment of infantile syphilis." "Late heredo-syphilis may appear between the third and the twenty-eighth years, the greater frequency being in the twelfth."

This is the pith of the matter; we may multiply names, but they convey only confusion. Syphilis is the only name of the disease, and when these cases are treated they are treated for syphilis.

Para-syphilis means one thing to one man and another to somebody else.

"Lues heredetaria tarda" means nothing more than that the recognition of the disease is late. Syphilis was present all the time, but it was not recognized. That is all.

Naturally the investigation is of such recent date that we cannot give a quantity of accurate statistics as to the number and proportion of cases to the whole number seen. The rapid growth of the neurological clinic at the Oakland College of Medicine, due to the investigation of the optic nerve, is illuminating. There we find patients from infancy to old age. Neurasthenia is not confined to the business or financial world, or to those having worries and shock, or brain work. We find it among the poor and careless. We find whole families with the stigmata of syphilis and there we find the evidences of the third and more generations.

We have the three generations under treatment at one time, and while it is quite true that many who have syphilis of the third generation are also combined second and third, there are many indisputably genuine third generation cases without the possibility of the intervening genitor in the second. We have cases where the history of syphilis comes from both sides of the family and the children are at least third if not fourth generation. These children are mainly idiotic. In a future article we will have gathered tables of cases, showing histories of families and groups with the stigmata, etc., which we believe will have much to interest.

In all we have seen in round numbers over a thousand cases, private and those at the clinic. There is no escape from the diagnosis of these cases, as the general physical condition, the optic neuritis, the scaphoid scapulæ, the deranged reflexes, the family histories, the typical color fields and the *therapeutic results* all bear out the diagnosis.

I have taken over 250 color fields, mostly of private patients and some few at the clinic and of all grades of cases; some of first generation, many of the second and many of the third. In some of these cases I have all three generations under treatment, and where all doubt of "intervening" infection is eliminated.

Another syndrome I have noticed that also gives the cue immediately—the state of the conjunctival vessels. Dr. W. W. Graves[3] in his excellent articles on "Syphilis and Scaphoid Scapulæ" mentions this and quotes the experience of Dr. Luedde with the corneal microscope in finding the dilatations and aneurisms in the conjunctival arteries.

I have long ago noticed these vessels and in 90 per cent it is not necessary to have the corneal microscope. One can judge of the appearance to the naked eye.

All that have optic neuritis have prominent and tortuous conjunctival arteries. If you will carefully note these cases with tortuous arteries, examine further and you will find other stigmata to correspond. This you will find in quite young children also. Many cases I have treated as a conjunctivitis, but it is not that. The patient has more or less photophobia, possibly at times lacrimation; all symptoms slight, but persistent.

---

[3] W. W. Graves, "Clinical Recognition of Syphilitics," Med. Review, Aug. 24, 1912.

The injection and tortuosity of the conjunctival vessels is as positive and constant a sign as the optic neuritis, the scaphoid scapulæ or any of the other signs.

If the clinician who observes this sign will make an ophthalmoscopic examination, take a complete family history, and make a thorough physical examination, he will believe then that there is more heredo-syphilis than he ever dreamed of before.

The one satisfying thing is the ease with which one can recognize it if he only looks.

In reference to nephritis, this is ranked as a separate disease, and a host of other symptoms are credited to the kidneys as being the prime offenders. Dr. Martin Fischer, in his works on "Oedema," and "Nephritis," has plainly shown nephritis to be secondary to a vascular disease.

Osler, in his "Practice of Medicine," 1904, says of chronic interstitial nephritis:

> Sclerosis of the kidney is met with (a) as a sequence of the large white kidney, forming the so-called pale granular or secondary contracted kidney; (b) as an independent primary affection; (c) as a sequence of arteriosclerosis.
>
> *Etiology.*—The primary forms are chronic from the outset, and are a slow, creeping degeneration of the kidney substances, in many respects only an anticipation of the gradual changes which take place in the organ in extreme old age. In many cases no satisfactory cause can be assigned. In others there are hereditary influences, as in the remarkable family studied by Dickinson, in which a pronounced tendency to chronic Bright's disease occurred in four generations. Families *in which the arteries tend to degenerate early are more prone to interstitial nephritis.* Syphilis is held by some to be a cause. . . . . By far the most common form in this country is secondary to arteriosclerosis.

The symptom complex called nephritis is merely a symptom of a disease and not a disease. So I have found in this large list of cases as they came under observation. Nearly all cases past thirty showed casts in the urine, granular, hyaline, and at times albumen. In some cases the urine was so loaded with casts that according to all observations and past experience and teaching, we were sure we were dealing with cases far advanced in interstitial nephritis and that the patients would die in a year or two at the outside. In several the blood pressure was 225 to 260 mmHg ("Tycos" and Faught).

Anti-syphilitic treatment has caused a decrease in the blood pressure, and the urine has cleared up absolutely.

I will report one case of especial interest, as he was referred to me as a case of nephritis:

Mr. E. L. came to my office January 4, 1912, from an oculist in another part of the country, with a diagnosis of interstitial nephritis, with optic neuritis and extensive hemorrhages in right retina. The urinary findings were: granular and hyaline casts, slight amount of albumen.

I referred the case to Dr. W. S. Kuder for physical examination. Age, 40 years, married; mother living; father died at 52 of apoplexy after five years of "mental trouble"; father had been a "rounder," treading the primrose path assiduously; one brother and one sister died at birth; one sister living and well, the eldest.

Examination.—Three weeks ago the right eye suddenly blurred; hearing defective; memory poor; has had some urgency of urination for a few weeks; symptom cleared up itself without treatment; no numbness; no tingling or formication; no vertigo. About once a month he had occipital headaches.

Pronounced Romberg; absence of reflexes in right upper extremities except gordon; pronounced gordon in both uppers; diminished reflexes in left upper; decided paraesthesias both uppers—slow and variable; abdominal reflexes present; left achilles jerk diminished; right achilles jerk exaggerated; no plantar reflex; pronounced ankle clonus, both sides. Tender sternum and tibiæ; marked enlargement of thyroid.

The patient had a responsible clerical position, and performed his duties, but he was "slowed down"; used to come home at night physically and mentally exhausted. The diagnosis of syphilis was made and he was at once put on iodipin, which he took by gluteal injections for three months. Following this a rest of two weeks, then mercurial inunctions were used, then iodipin for two months, then a rest, then iodipin again 7 cc. tri-weekly.

All casts, all cellular elements have disappeared from the urine. The hemorrhages have disappeared from the retina. All denseness and sluggishness have disappeared. He now comes home at night not exhausted, but feeling absolutely "fit." I remarked that he looked five years younger. He retorted, "I'll go you better. I *feel ten years younger.*" This man would have died as a nephritic under the nephritic regime, and is as typical a case of interstitial nephritis as one would wish.

My opportunity for observing cancer is necessarily limited, but a significant thing in the taking of histories appeared which has impressed us lately. We find cancer in a large proportion of these families, and every case of cancer I have known of in my practice in the last two years has been in a syphilitic (by this I do not suspect for a moment that syphilis and cancer have anything in common, but the prevalence of cancer in syphilitic families might make us think that cancer developed more easily in a syphilitic than a non-syphilitic).

I do not treat these cases myself, but send them to an internist, genito-urinary specialist, or neurologist, as the case may be.

I have some right and some reason to an opinion on treatment.

Words fail in trying to express an opinion on the present day, "at large" treatment of syphilis. Generally, patients get a few months of protoiodide of mercury pills, alternating with potassium iodide. A smaller proportion rush to salvarsan and that settles them in their physician's mind and theirs after about two doses.

My observation would tell me that of all the cases treated, those who show the most satisfactory results are treated with iodipin, then a rest, then mercury, then arsenic. The greater variety of ways arsenic and mercury are given, the more permanent and better are the results.

Some rely on mercury injections almost altogether. One case under that treatment: Mercury injections for over a year, and dismissed for a good rest went promptly bad; Wassermann plus 3; loss of flesh, pains all over the body; cough; in fact a most wretched condition. A change of treatment to iodipin made a prompt improvement; and this, followed by three injections of salvarsan, put this man thoroughly on his feet, though not considered by any means cured yet.

During the latter part of the year this patient was on mercurial treatment his wife became pregnant. This worried him dreadfully, but his physician, a G. U. specialist, assured him that his baby would be born free from any possible taint, as he, the father, was on such active anti-syphilitic treatment. The baby was born and promptly showed evidences of hereditary trouble; fearfully nervous all the time, sleeping and waking; peevish, irritable, liable to sudden gusts of temper, so that even his father said, "Why, that boy acts nutty at times." He had optic neuritis of a marked character, scaphoid scapulæ, acutely exaggerted reflexes, exceedingly anæmic. Anti-syphilitic treatment has changed all this and the boy is now quiet mannered, does not break into gusts of rage, and is a changed being. He is not an angel, but he certainly was a little devil before treatment.

The splendid article in The American Magazine for October, 1913, by Arnold L. Gesell, shows an intensely interesting study in heredity, and if he had headed the article *Syphilis* it would have been complete. Any community will show many examples of heredo-syphilis, the extraordinary prevalence of which is due to non-recognition and grossly insufficient treatment.

SUMMARY.

1. From our experience in the last two years, we will say that syphilis, especially hereditary syphilis, is *infinitely* more common than any authorities have admitted or dreamed.

2. That the clinical evidences show the stigmata in the third, fourth, and even more generations.

3. That neurasthenia, the most widespread and common of nervous disorders, is absolutely caused by syphilis, and that it is not a psychoneurosis, but a distinct physical disease of the brain and cord. The psychoneurosis element is entirely secondary to and caused by syphilis.

4. That dementia præcox, manic-depressive insanity, general paresis are only different grades of the disease. Insanity is cerebrospinal syphilis of different degrees, ranging from irritation, mild inflammation to actual degeneration of tissue.

5. Hyperthyroidism, hypothyroidism, interstitial nephritis (with but possibly a small percentage of exceptions), and chronic sinusitis, are but symptoms that appear in syphilis. Tuberculosis has long been known to develop most easily in syphilitics, as the tissues are much less resistant.

Cancer appears to be most frequent in syphilitics. This can easily be proven on investigation, examination of cases, careful family histories, etc.

In all cases we have investigated we have seen *absolutely no evidence* that alcohol is the causative factor in insanity. It has always been syphilis. The neurasthenic are unbalanced; *i. e.,* the syphilitic brain craves; the subject drinks; alcohol poured into a syphilitic brain is disastrous. The *non-syphilitic* alcoholic parents do not beget the idiotic, defective children, but the alcoholic syphilitics do.

One of the pleasantest experiences in this investigation is the easy recognition of cases that are already on the border line of dementia præcox; cases unmistakably genuine, school children. Many of these have been promptly arrested in development of the malady and saved from the state hospitals.

Also another class: the young moral defectives, little irresponsibles, lying, maliciously mischievous youngsters, perverts, etc.

The recognition of hereditary syphilis is easy in these cases. Practically all have the usual family history. All have the stigmata—optic neuritis, the majority with more or less defective vision, scaphoid scapulæ, deranged, absent, or badly mixed reflexes. Some of these are brought from the juvenile court, some from the defective sections of our schools. These show a large percentage of positive Wassermann.

As I said before, the clinical signs are easy to read in all these cases, and it has been pleasurable to be able to recognize the incipient dementia præcox cases, with the stigmata complete, the tell-tale family history, and with anti-syphilitic treatment, see those distressing symptoms disappear, the patients return promptly to mental and physical health. Much has been written and said about the *hereditary taint.* That is a word that should be forgotten; it is not a *taint* handed down, it is the spirochaete itself, and in these nervous cases it is in the parenchyma of the brain and cord, as shown recently in paretic cases by Noguchi, to whom much honor.

I wish to express my thanks to Dr. Milton H. Schutz for the drawings of the optic discs and to Dr. Stephen Wythe, one of my associates in the Oakland College of Medicine, for his assistance with the paper.

The seventeen case records presented have been selected as follows: three acknowledged, acquired syphilis, with direct history of infection; one of these has gone insane; one has acquired pulmonary tuberculosis; one has ocular neurasthenia to a slight degree, but suffers principally from annoying lacrimation; one case of exophthalmic goiter; three manic depressives; one hypophyseal case; one angio-neurotic edema. The balance are of varying degrees of neurasthenia.

Dr. Jau Don Ball reports twelve of the cases; Dr. W. S. Kuder four; Dr. W. H. Strietmann, one.

The original diagnosis was made from the eye findings. The color fields were gone over several times for confirmation. I find, that when gone over carefully, that the subsequent fields are practical duplications. The sector-like contractions show in exactly the same meridians.

CASE 34 (Illustration I).—Report by Dr. Ball. American housewife; age, 29 years; married.

Heredity.—Father living, age 61 years; keen, active man, having but poor insight into sufferings of others; high-strung. Mother died suddenly after operation for uterine cyst. Suffered severe headaches, and had "eye trouble." Two brothers in poor health.

Health History.—Always had weak stomach; "blinding headaches" when six to eight years old. Optic hallucinations; saw "great lumps of sugar and would walk around them." Appendicitis 12 years ago; operation. Has a great deal of indigestion. Measles and pertussis at age of five years. Mumps at 10 years; tonsillitis at age of 20 years. Menstruation began at age of 11 years and was regular. Pain commenced two years later, always on left side. Flow lasts seven days. One week before menstrual, headaches and pain in cervical and lumbar regions.

Injuries.—None.

Habits.—Good.

Present Illness.—Symptoms of psychomotor acceleration alternating with psychomotor inhibition. Occasionally depressed. Irritability a marked symptom. "Neuritis" pains general. Eyes feel "fuzzy." Muscular weakness.

Neurological Examination.—Plantar reflex: No response. Epigastric reflex normal. Cervical skin reflex sluggish on both sides. Tendo Achilles reflex exaggerated on right side, normal on left. Knee-kick greatly exaggerated on left; exaggerated on right. Superior tendon reflexes: Triceps, biceps, ulnar, radial, and pectoral, all sluggish. Suspicious ankle clonus on right only. Coordination fair. Sensation for pain hyper (especially marked in lower extremities). Sciatic points very tender. Extreme tenderness over both sacro-iliac joints. Subjective pains in arms and legs. Thermic sense markedly disturbed; areas of cold and anæsthesia on right and left sides and extremities; heat sense dulled in upper and lower extremities. Cranial nerves: Nothing abnormal noted. Dynamometer reading: Right 24, left 22. Dermographia present. Thyroid slightly enlarged.

Remarks.—The brother of this young woman likewise had double optic neuritis of more constant bad character than the sister. Was delicate, timid, lacked confidence in himself. Suddenly lost hearing in one ear (labyrinthine deafness).

Under treatment he has developed splendidly; gained weight, has ruddy complexion, has the looks and carriage of a man, which he lacked before. The optic discs were both swollen, borderless, red as the retina; color fields very much contracted.

Treatment.—Patient's eyes would cloud up with a translucent swelling on the disc, which would leave perhaps in a few days. A few weeks iodipin cleared up the vision to 20/20, and a general feeling of well-being followed.

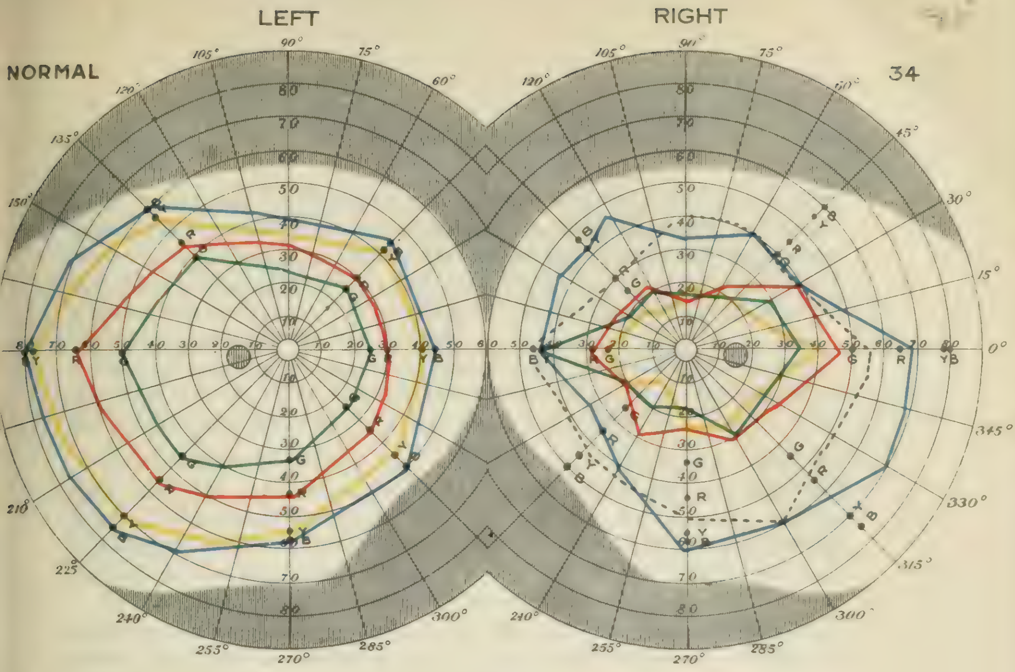


ILLUSTRATION I

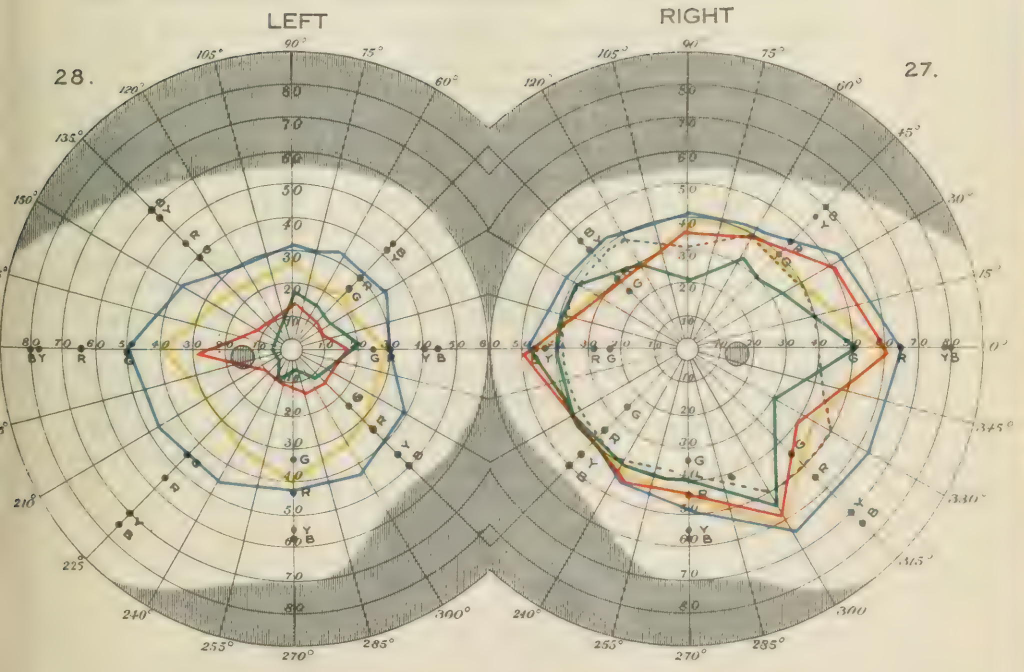


ILLUSTRATION II

Then iodipin was continued for two months, when such swelling in both gluteal regions took place that the patient was confined to bed. All treatment then was refused, but patient kept up the improvement for nearly eight months—no headaches, always felt well, strong and vigorous, a changed woman. In the middle of March, 1914, the eye-symptoms returned with the headaches, and treatment was resumed.

The optic discs in this case varied greatly from week to week. At no time was there a P. O. and at the times of exacerbation a cloudy swelling almost hid the disc from sight, as in plate of disc No. 7. (Page 61.)

Case 27 (Illustration II).—Report by Dr. Kuder. This case is one of the early ones, who was suspected of having a brain tumor. Age, 45; American housewife; suffered with almost constant headaches for 10 years. Lenses had been prescribed by me 10 years ago. I had not been consulted about the headaches since that time. Vision 20/30, not improved by lenses.

In April, 1912, patient came with a severe papillitis of the left eye with extensive hæmorrhages in and around the papilla. The right disc was redder than normal, dusky, no P. O., but vessels apparently normal in relation. The color field is of the " good " eye.

Several diagnoses were made by several internists. Brain tumor, thrombosis of cavernous sinus, etc.; Wassermann negative; X-Ray failed to locate anything. As this " merry widow " has had three husbands, and one of these died of syphilis, she was put on antisyphilitic treatment; Salvarsan; several injections; iodipin; and mercury injections. Her headaches cleared up, the progress of the papillitis was stayed, the vision in the right eye came up to 20/15 plus, and the patient is feeling better than in years.

Long after treatment was begun, and she began to feel better, she informed us that she had had alternate fits of exaltation and depression with suicidal tendencies and had kept poison on hand.

Case 28 (Illustration II).—Nationality, American; age, 76; married; attorney; negative heredity; diagnosis, progressive bulbar paralysis.

When the patient came under observation, the symptoms were well advanced. In this case no history of syphilis could be obtained, but a diagnosis of a syphilitic base for this organic condition was made from the eye findings and color fields, after which positive Wassermann reaction was obtained. Anti-syphilitic treatment was instituted, but the disease was too far advanced to make any impression. Within two years the patient died, paretic dementia symptoms supervening.

Neurological Examination.—Plantar reflex, Babinski toe on both sides; cremasteric reflex, absent on the right, sluggish on the left; epigastric reflex, normal; cervical skin reflex, no response; pupillary reaction, reaction to light very sluggish (one year later, no response to light); tendo Achilles, unequal and sluggish; KK, greatly exaggerated on both sides; superior tendons, all exaggerated; sensation, unsatisfactory examination; coordination, Romberg present.

Case 116 (Illustration III).—Report by Dr. Ball, January 2, 1913. American, unmarried; age, 34; stenographer; father living, age, 64; poor health for several years, having had maxillary sinusitis, pleuritis and periostitis. Mother died insane, after having suffered from epilepsy for 30 years. One brother has chronic sinusitis and an amblyoptic eye, one sister chronic maxillary sinusitis, one brother well. All have marked optic neuritis. One aunt and uncle neurasthenic. Maternal grandmother died of goiter.

This case—116—suffered all her life from fearful headaches, prostrating in character, severe attacks of hyperacidity, paroxysmal attacks of pain in abdomen, painful over pylorus and appendix; patient describes this as chronic " stomach trouble." *Crises.*

Examination revealed sternum and tibiæ tender, and periosteum thickened; a few inguinal and numerous cervical glands, heart and lungs negative; patient has noticed brownish discoloration remains at sites of healed acne lesions.

Memory good, slight vertigo present, sleep variable, Romberg negative, exaggerated reflexes both upper extremities, exaggerated reflexes right knee and ankle, diminished left.

Patient at first treated with potassium iodide, as she refused iodipin injections; later however took the injections. April, 1913, reports a great improvement; gastro-intestinal symptoms gone, feels better than she has in years.

April, 1914, has had during year courses of mercury and arsenic, and is better than ever in her life; very rarely has a headache.

Case 23 (Illustration III).—Report by Dr. Ball. Jewish student; age, 22 years; single.

Heredity.—Mother psychasthenic; maternal uncle, paralysis; paternal, Wassermann spinal fluid; father apparently normal; grandfather died at 70, nervous wreck many years; two sisters, hysterical neurasthenia.

Health History.—1909, lobar pneumonia; diphtheria; chicken-pox; 1910, ophthalmic herpes zoster.

Injuries.—Head injury at age of ten, slight scalp wound.

Habits.—Good. History of excessive masturbation.

Present Illness.—Began in spring of 1908. Phobias; sense of unreality. Fatigues easily; depression; vague pains in eyes; persistency of images; flashes of darkness. Globus; at times difficulty in swallowing, making a choking, noisy effort swallowing. Constipated; dry, harsh skin; insomnia at times.

Neurological Examination.—Plantar reflex: No response, except for excessive action of muscles on anterior portion of thigh. Cremasteric reflex normally active. Epigastric reflex normally active. Tendo Achilles reflex normally active on both sides. Knee-kick: Left exaggerated; right sluggish. Superior tendon reflexes: Triceps and biceps on both sides sluggish; pectorals normal. Coordination good. Sensation normal. Cranial nerves normal, with possible exception noted in speech at times (slight tremor and a distant tone). Memory good. Logical powers good.

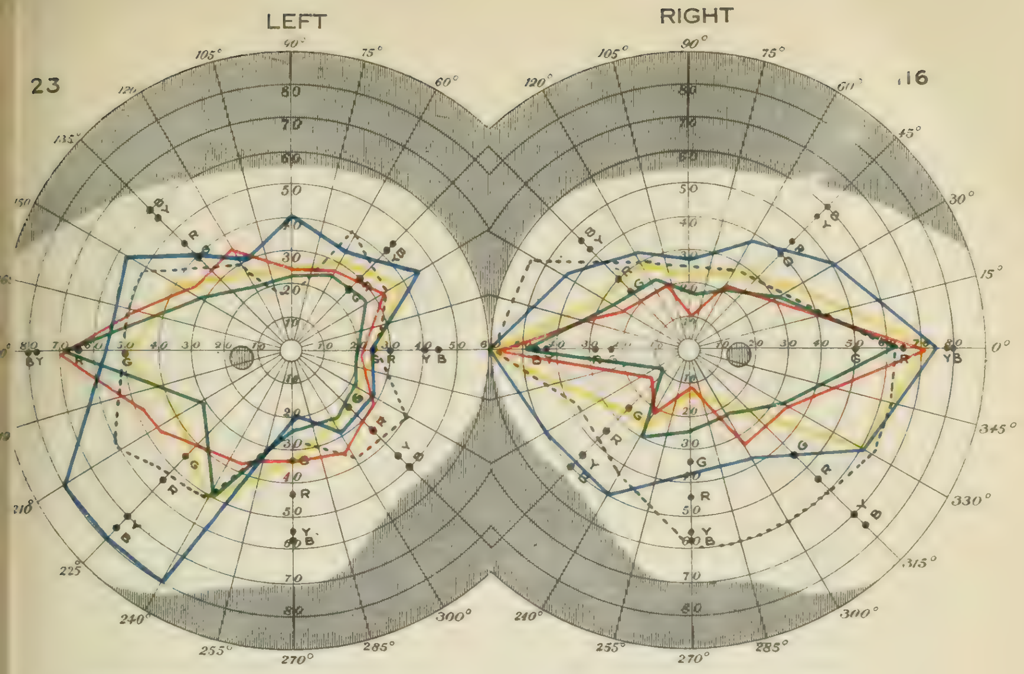


ILLUSTRATION III

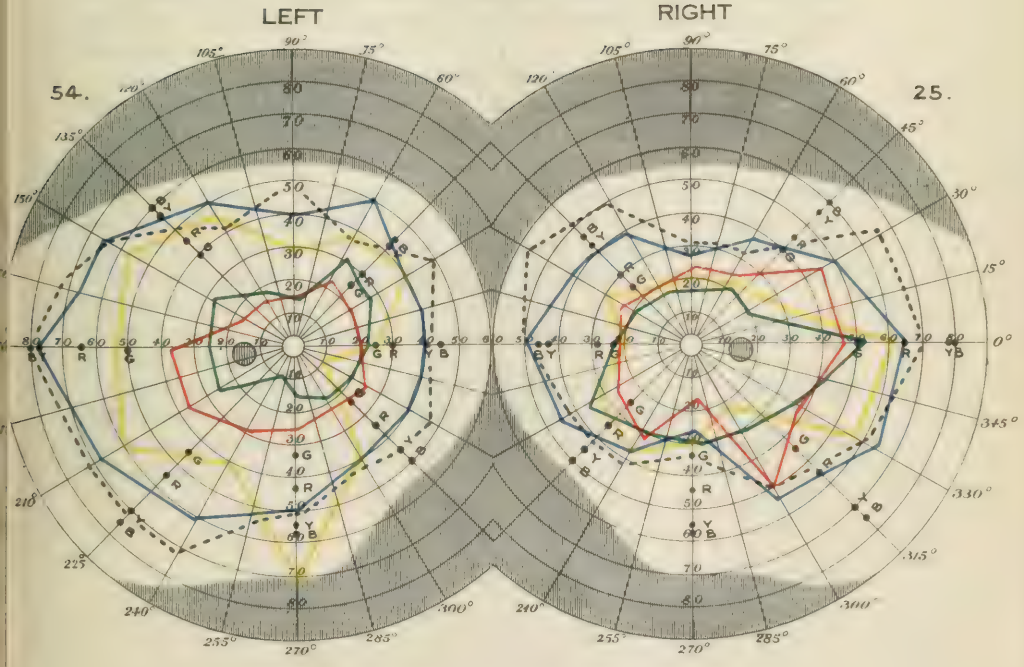


ILLUSTRATION IV

Remarks.—October 9, 1912, optic neuritis and no P. O. April 23, 1913, P. O. present.

Had had to leave school a number of times owing to neurasthenia and phobias; at times had suicidal tendencies.

Treatment.—Iodipin intramuscularly; salicylate of mercury, cacodylate of mercury, mercury by inunction; hydrotherapy; regulation of diet and hygiene; improvement is marked, especially since intensive treatment with mercury began.

CASE 54 (Illustration IV).—Report by Dr. Kuder, April 2, 1912. Housewife, American; age, 42. Father died of apoplexy, mother living and well, one sister had T. B., one sister has exophthalmic goiter.

Patient always had been remarkably healthy and full of vitality and spirits.

Water on knee 10 years ago, thinks it came from an injury. Knee symptoms returned five months ago, associated with irritation and pains in the eyes; some headache. Habits, occasionally too much champagne.

The present illness began two years ago with irritation in the eyes with persistent lacrimation; no treatment or fitting with lenses had the slightest effect on this distressing symptom. She consulted several oculists between Oakland and New York, and the best she got was the advice to try Christian Science. (Her husband is a known syphilitic, though not married until 10 years after the initial lesion was obtained.) On her return to Oakland I was again consulted about her hearing which had become defective; on examination further I found the vision had also reduced to 20/30; taste was markedly off; everything tasted alike; sense execrable; said she got furiously angry over little things that previously did not affect her; nervous and depressed for no apparent reason. Had sensation as of swollen hands.

The neurological examination is incomplete, as the patient did not submit to it, except the following: Romberg marked, superior tendon reflexes exaggerated, lower right exaggerated, lower left diminished, sensation, right upper hypo; left upper normal.

On vigorous anti-syphilitic treatment, this patient has improved remarkably, the persistent lacrimation has disappeared, and she has gained markedly in weight and is superlatively good natured and happy.

CASE 25 (Illustration IV).—Report by Dr. Ball, September 25, 1912. American; age, 34; bookkeeper; married. Primary syphilis seven years ago; treated at Arkansas Hot Springs for a short time; pronounced well; married 1909; has one child thirteen months old. Consulted me on account of intense headaches, frontal, vertical and occipital; stabbing in character, and more or less constant.

There was an intense double optic neuritis—border of discs indistinct and fiery red in color, no P. O.

Neurological examination by Dr. W. H. Strietmann, reflexes apparently normal throughout, tibiæ show slight periostitis with marked tenderness.

Romberg, slight; sensations; hypersensitive to pain; thermal sense normal, iodipin injections.

October 15, reports improvement of headaches, put on potassium iodide.

December 18, headaches becoming worse.

December 28, /12 Neo Salvarsan six decigrams.

April 15, reports by letter that headaches have almost gone and has gained 15 pounds in weight during treatment. This patient lived some distance from Oakland, and owing to that could only come in occasionally for treatment. In June, 1913, patient suddenly developed bulbar paralysis, general paresis and was taken to a hospital for the insane.

Case 119 (Illustration V).—Report by Dr. Ball. American housewife; age, 38 years; married (divorced).

Heredity.—Mother suffering from melancholia.

Case History.—Married at the age of 20, and divorced after six years. Has one son 15 years old. Had two abortions prior to the birth of this child, and one three years following its birth. Had no injuries. Is a constant user of alcoholic stimulants. Has always been delicate. Had "stomach trouble" for years. Spells of nausea and vomiting. Fifteen years ago had a skin eruption in the form of vesicles or blisters. Ten years ago face was swollen; typical angio-neurotic edema. After husband returned from the Orient, wife developed this skin trouble.

Present Illness.—At present time patient is suffering from angio-neurotic edema, neurasthenic symptoms, periodical pain, and great irritability, and fatigues easily.

Neurological Examination.—Plantar reflex: No response. Epigastric reflex present. Cervical skin reflex present. Tendo Achilles reflex sluggish on both sides, hard to elicit. Knee-kick greatly exaggerated on the left; less on the right. Suspicion of Gordon paradoxical reflex. Coordination: On both feet, fair; on one foot, poor. Sensation somewhat delayed. Occasionally tender sternum. Right lobe of thyroid enlarged, tenderness over the liver, marked tenderness over the appendix, left iliac region tender, considerable tenderness over the course of the left sciatic nerve. Hair is undoubtedly gray, but patient dyes the hair. Very anemic. Wassermann negative.

Treatment.—Refused intramuscular treatment, but takes internal treatment intermittently. Improves rapidly; treatment ceases; then takes treatment again, and again improves.

Case 26 (Illustration V).—Report by Dr. W. S. Kuder. American housewife; born August 19, 1860; married.

Heredity.—Nervous and mental history negative. Mother died at age of 50 (pneumonia); father died at age of 63 ("dropsy"); one brother died at age of 40 (pulmonary tuberculosis); a half-sister died at age of 24 years (eclampsia). Oldest daughter (25 years) healthy. Second daughter (22 years) has fainting and dizzy spells, and frequent headaches; is subject to "colds"; has tenderness over appendix; has a mitral systolic murmur; has dry, harsh skin. Third daughter (14 years) has headaches, and a marked acne.

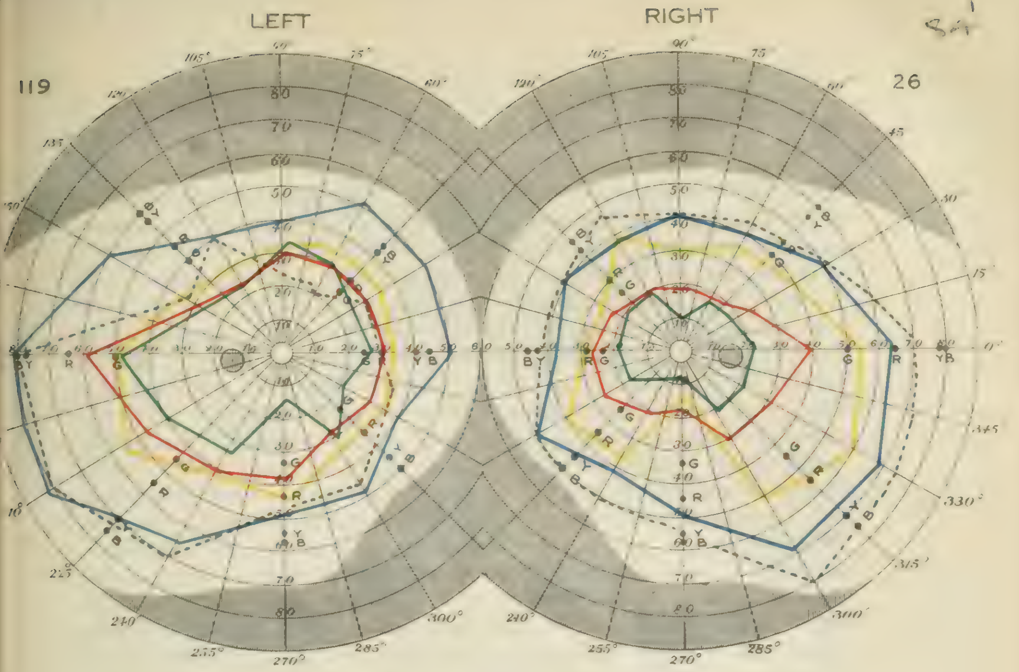


ILLUSTRATION V

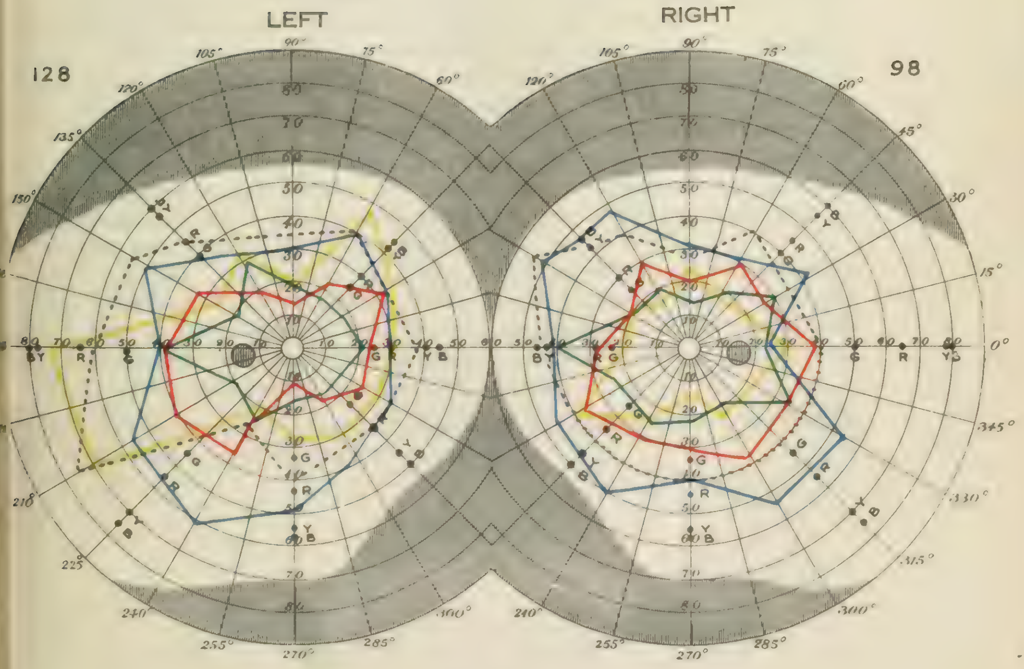


ILLUSTRATION VI

Health History.—Pertussis, age four years; measles, age 20 years; typhoid, age 15 years, after which she was very "nervous," and would "scream out" in public. This "gradually wore off." Scarlet fever at age of 11 years; chicken-pox during infancy. As a child, she was naturally timid. Married at age of 24 years; four children, three girls and one boy (girls born 1886, 1889, 1898; boy born 1893). One abortion and one miscarriage. One miscarriage between first and second child. Badly lacerated after first child. Felt as if she was "going out of mind" after first child was born. Could not sleep for a long period; "took months to get well and strong." Attached placenta after second child; hemorrhage, followed by septicemia; four weeks in bed; months recovering; slight phlegmasia alba dolens; could not stand for long time; always wished to sit down. Hemorrhage after third child; placenta again adherent. This confinement was followed by *ulceration or patches in vagina and labia, visible to the eye and "looked like canker-sores in the mouth." This was followed almost immediately by "rheumatism" in all joints, especially painful in knees.* After second child, had "sciatica" in left leg. After fourth child, had severe hemorrhage and adherent placenta; but health improved up to five years ago, with exception of occasional "touches" of rheumatism. Four years ago, had "nervous breakdown" and has not been well since. At age of 24 years, a few weeks after marriage, developed "shingles." Also had enlarged cervical glands and night-sweats.

Injuries.—None.

Habits.—Good.

Present Illness.—Began four years ago with a "nervous breakdown," since which time she has had pain in back of head, a "sapping of strength," a "leakage somewhere," "insomnia," fainting spells, especially when standing; felt she could not talk; belched great quantities of gas; had various phobias; pain in head gradually growing worse at night; irritable and weak; did not wish to meet friends and avoided making calls.

Neurological Examination.—Plantar reflex: No response. Epigastric reflex unequal, sluggish on left. Cervical skin reflex sluggish. Pupils slightly irregular. Tendo Achilles reflex: Both sluggish. Knee-kick exaggerated on both sides, more so on left. Superior tendon reflexes all exaggerated. Coordination: Both upper and lower fair, no Romberg. Sensation slightly delayed on soles of feet. Threshholds for pain and touch hypo on right, apparently normal on left. Blood pressure: Systolic, 210 mm. Hg; dyastolic, 196 mm. Hg.

Remarks.—January 30, 1913. Since the first of the year improvement is marked. Is not longer depressed, has no headaches, and is happy and easy in mind. Reported last, July 20, 1913; says that she "does not need a physician" as she is feeling so well and is entirely free from all symptoms.

Treatment.—Iodipin, mercury, and sajodin.

CASE 98 (Illustration VI).—Report by Dr. Ball. German; married; at present salesman, formerly prize-fighter.

Heredity.—Father died at age of 76 (cystitis); was very "nervous," alcoholic, and had a fiery temper. Mother died at age of 84, cause unknown; rheumatic, has "heart disease," and was operated on for hydrocele; one brother, 52, good health, was operated on for hydrocele, married, six children, all well; one brother, 50, is "wild," alcoholic, married, one son in good health. Patient has three children: two boys, seven years and 17 years; one girl, 14 years. Oldest boy has rheumatic attacks, asthma, strabismus, and optic neuritis.

Health History.—Travelled a great deal and lived in the Orient for a number of years; drinking more or less excessively. Had ordinary diseases of childhood; also suffered from boils or abscesses on neck. Gonorrhœa twice; herpes zoster, right intercostal, two years ago, followed by cough of several months duration.

Injuries.—Ordinary injuries incident to life of a prize-fighter. Eleven years ago was hit on the head, in right parietal region; momentarily unconscious. Plain rectal fistula on left side, treated by "injection."

Habits.—Alcoholic, great smoker; dissipated life.

Present Illness.—Began three years ago with "stomach trouble." At that time, and off and on since, had shooting pains in the shoulders, more marked on the right side. Failing sexual power past two and a half years, and at present is impotent. At present is easily frightened and worried, easily irritated; has vertigo, headaches noticed past two months for the first time. Two months ago noticed diplopia, which was followed by exophthalmos and paralysis of inferior rectus muscle of the right eye. Typical exophthalmic goiter developed, the marked symptoms being exophthalmos, tremor, and tachycardia.

Neurological Examination.—Plantar reflex absent on left, sluggish on right. Cremasteric reflex sluggish on right, exaggerated on left. Epigastric reflex sluggish. Cervical skin reflex absent on right, sluggish on left. Tendo Achilles reflex greatly exaggerated. Knee-kick greatly exaggerated on both sides. Superior tendon reflexes all greatly exaggerated. Coordination poor; ataxic gait; keeps eyes on floor when walking. Slight incoordination of facial muscles. Faint fibrillary tremor of both hands, and of upper lip. Inspection: Darwin ear; exophthalmus, both eyes; fingers are clubbed and blistered; skin scaly on both hands, especially marked on the first and second finger and the palmar aspect; jaws abnormally large; cachexia. Sensation: Sluggish reaction to pain; tender shins; thermic sense exaggerated for heat; cold normal up to knees and elbows. Dynamometer reading: Right, 44 pounds; left, 34 pounds.

Remarks.—The wife had several miscarriages after the birth of the first child.

Treatment.—Iodipin 10 cc. in series of 10 doses, alternating with mercurial inunctions, 60 gr. each, in series of 22 inunctions; hygiene and dietetic; hydrotherapy.

Eye examination, September, 1912: Vision 20/30, both eyes; media clear, slight swelling and haziness of both discs. No P. O. December 16, 1912: Vision OD 20/30(⅓). April 12, 1913: OD 20/20+, OS 20/15(½).

July 19, 1913: 20/15 both eyes, with corrections, and diplopia disappeared. November 28, 1913: Discs level, normal color, light spots appearing where P. O. should be. March 11, 1914: Both discs clear, P. O.'s showing as P. O.'s, though small.

Case 128 (Illustration VI).—Report by Dr. Ball. Male; age, 32.

Heredity.—Father living, a man of high mental attainments, a lawyer and politician by profession, characterized as somewhat eccentric, age about 72. Mother living, quiet woman, of melancholy disposition. History of grandparents negative except for paternal grandmother, who had senile dementia. Two brothers living, one aged 30, one aged 36; both intelligent men and yet somewhat eccentric. The one aged 36 has a very violent temper as a psychical characteristic. The one aged 30 is noted for his stubbornness and great unreasonableness. One sister living, who is of a depressed nature, seclusive in her attitude toward life and not liking company.

Health History.—The patient has had the ordinary diseases of childhood. Rural life until the age of 18; then college life; then occupation as a civil engineer. Acquired syphilis nine years ago. Six years ago acquired pulmonary tuberculosis.

Present Illness.—This case is an actually known syphilitic case and, as such, gives typical fundi findings and color fields. Several positive Wassermann reactions prove the existence of the disease.

Neurological Examination.—Apparently some atrophy of the interossei muscles dorsal of the hand. Hypertrophy: None. Plantar reflex: Delayed normal response. Cervical skin reflex decidedly sluggish. Epigastric reflex normal. Cremasteric reflex very sluggish. Gordon paradoxical reflex present on the right. Tendo Achilles reflex unequal and very sluggish, more sluggish on the right. Knee-kick: Right absent, left very sluggish. Superior tendon reflexes apparently normal; if anything, a little sluggish. Cranial nerves apparently normal, except that pupillary reaction to light seemed sluggish. Coordination not good for lower. Sensation delayed. Thyroid slightly enlarged. Scapulæ scaphoid.

Treatment.—This man was treated vigorously for 18 months after the primary sore, then spasmodically thereafter up to the present time.

Case 133 (Illustration VII).—Report by Dr. Ball. Irish housewife; age, past 50 years; married.

Health History.—Had several miscarriages followed by the birth of one child, which lived to be 17 years old. Had measles at 12 years of age. Five years ago had skin disease, forming vesicles which dried and became scaly, leaving raw and painful surfaces.

Injuries.—Has had no injuries.

Habits.—Is possibly an alcoholic.

Present Illness.—Complains of numbness and tingling of the extremities. Various paræsthesias, abdominal pain, cardiac palpitation. Badly constipated, and has hemorrhoids, badly lacerated perineum and cervix. Pulse 110. Former weight, 195 pounds; present weight, 150 pounds. The patient is cachectic; occasionally has involuntary urination. Dried ulcer on the right great toe unaffected by treatment to date. Very emotional, cries easily and is distressed. Complains of vertigo and sleeps very poorly.

Neurological Examination.—Plantar reflex: No response. Epigastric reflex normal. Cervical skin reflex sluggish. Tendo Achilles reflex unequal, very hard to elicit on the right. Knee-kick greatly exaggerated on both sides. Superior tendon reflexes: Biceps and triceps cannot be elicited; very sluggish. Sensation is markedly delayed in feet and hands. Coordination poor, especially on one foot. Frequent examination of the urine shows glycosuria varying from 2 per cent to 6 per cent. Mental condition: Memory is poor for recent events; logical powers are poor. Is very emotional. Vertigo is occasionally present, and sleep is poor. Wassermann reaction is negative. Three years ago had melancholia for three months.

Treatment.—Improved markedly under antisyphilitic treatment; then abandoned treatment, and died four months later from "uremic coma."

Case 160 (Illustration VII).—Report by Dr. Ball. German-American woman; age, 63 years; married.

Case History.—Patient's husband left her about 30 years ago. He was a man who was away from home a great deal and who went around with other women; especially did this occur during the last year that he lived with her. Patient says her husband was healthy, except that he had "granulated eyelids." Had three children, two of whom died under the age of five. No miscarriages. Had children's diseases, as measles, scarlet fever, etc., when a child; but in young adult life was very healthy and strong, except for the "rheumatism" mentioned below. Had tape-worms when a young woman. Had had "lumbago" during last two or three years.

Present Illness.—Complains of *twitching of eyelids.* Twitching has been going on for past seven months, following fall which produced blackening of entire face. Also has worried a great deal. Has worn glasses for a few months. Has had "rheumatism" a great deal for a number of years, with some sharp pain in left eye. Optic neuritis.

Neurological Examination.—Babinski negative. Oppenheim negative. Gordon negative. Ankle clonus negative. Knee-kick slightly exaggerated on right, normal on left. Tendo Achilles reflex normal. Cervical skin reflex normal. Pupillary reflexes normal.

Treatment.—Took KI and mercury iodid, and "rheumatism" and twitching disappeared.

Case 118 (Illustration VIII).—Report by Dr. W. S. Kuder. Mrs. E., American, 47 years of age, was referred to me for consultation in May, 1912.

Her mother died of pulmonary tuberculosis. Her father at an advanced age came to death unknown. One sister died of apoplexy at 51, otherwise the family history was negative.

In childhood she had measles three times, and she thought most of the other diseases common to childhood, including diphtheria, Four years ago she suffered a severe attack of typhoid, and two years previously she had the left breast amputated for cancer. She had only one pregnancy, which re-

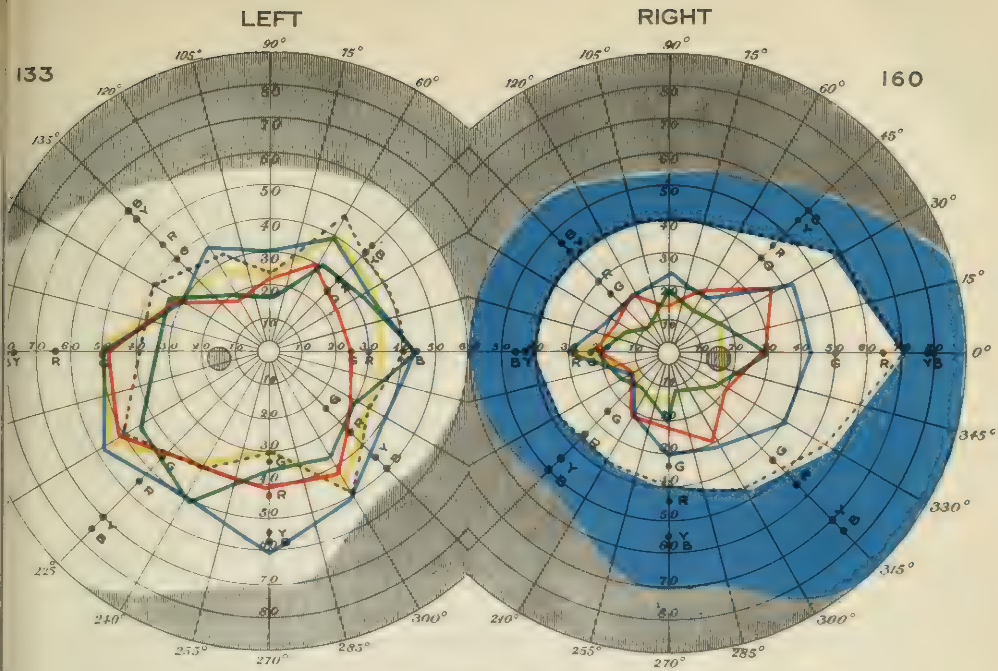


ILLUSTRATION VII

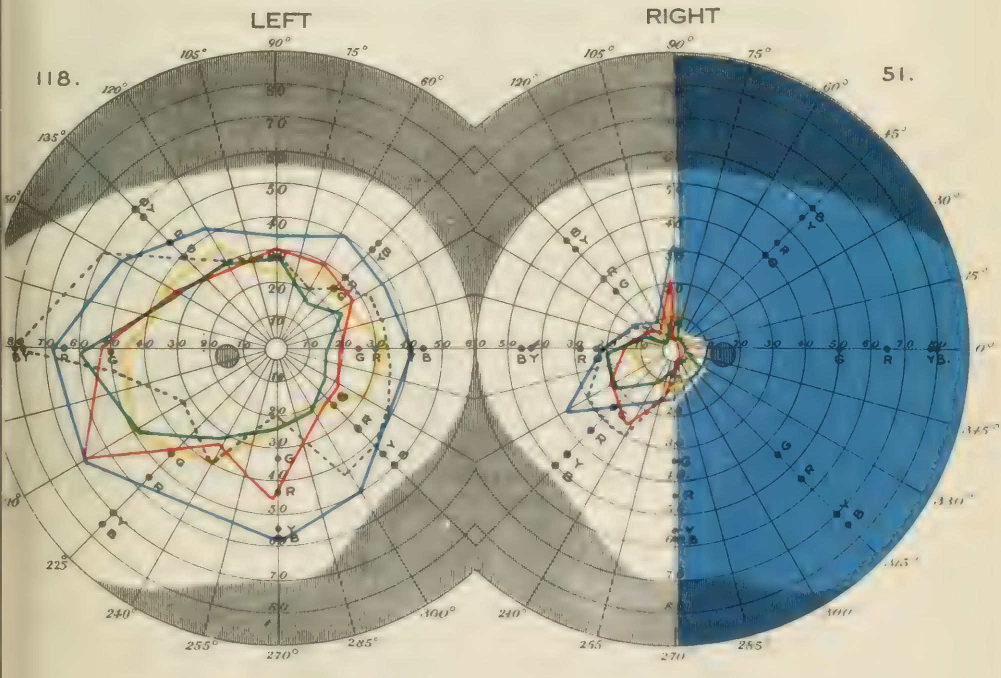


ILLUSTRATION VIII

sulted in premature birth at the eighth month without apparent cause. She dated the beginning of her illness to two years previous following the removal of the breast. She was wakened at night with tingling of the right great toe, bone pains in right tibia, and rheumatic pains in the right arm. There was also considerable numbness and tingling of the left hand. She complained of vague pains in the head and attributed her falling hair to them. She had been unable to walk in the dark for a number of months, and her sister informed me that she had difficulty in walking with her on the street, because of the patient's inability to walk straight. On inquiry she acknowledged to a tendency towards hysteria and great difficulty in writing and speaking at times. The bladder was incontinent and there was dribbling when stepping off a curb or car. She complained of frequent feelings of vertigo, poor memory and very poor sleep. In addition to the above mentioned pains there were almost daily seizures of lancinating pains in the head.

In appearance the patient was healthy but extremely stupid. Questions had to be repeated and cross examination was necessary to verify her answers. The pupils reacted to light and distance. There was no abnormality of the head.

The sternum was equisitely tender, as were also both tibiæ. Examination of the heart and lungs negative. The only finding in the abdomen was a somewhat enlarged liver. The examination of the nervous system revealed a pronounced Romberg, exaggerated reflexes of all extremities, with a marked diminution of sensation of the right upper and lower extremity. There was no Babinski, Gordon or Oppenheim.

The patient was treated in courses with iodipin, mercury, sodium cacodylate, intramuscularly until the following March when a recurrence of the cancer required a second operation, making further treatment useless.

Case 51 (Illustration VIII).—Report by Dr. Ball. American housewife; widow.

Heredity.—Negative.

Health History.—As a child "abscess of spine"; typhoid fever about age of 14, followed by squint. Numerous miscarriages. "Nervous prostration" one year ago, since which time she has been unable to see in right field, and has had difficulty in using right leg and right arm.

Habits.—Good.

Present Illness.—Began over one year ago. Loss of weight, some "stomach trouble," "nervous prostration," right homonymous hemianopsia, paresis of right leg and right arm; can burn right hand without feeling heat.

Neurological Examination.—Plantar reflex: Sluggish response. Epigastric reflex: Sluggish response. Tendo Achilles reflex unequal; right very sluggish, left sluggish. Knee-kick greatly exaggerated on left. Superior tendon reflexes all very sluggish and hard to elicit. Oppenheim toe reflex on right. Gordon paradoxical reflex on right (also compression of left calf induces paradoxical reflex on right, contra-lateral Gordon).

Coordination: Romberg present. Slight tremor in upper extremities. Sensation: Threshold for pain hypo generally, and quite sluggish on soles of feet. Threshold for heat and cold markedly diminished in upper extremities, more especially on right side. Tactile sense preserved, giving a suggestion of dissociation of tactile and thermic senses such as is often seen in syringomyelia. Mental examination: Flow of ideas slow, generally retarded (both motor and sensory retardation). Somewhat confused. Irritable at times.

Remarks.—Fundus difficult to see; dusky red disk; no P. O.; vision, right eye 20/80, left eye 20/120.

Treatment.—This patient had to be assisted into the clinic, head wobbling from side to side, gait like that of an intoxicated person. After three weeks' anti-syphilitic treatment, patient became herself, vision improved and her general feeling was fine; after this she disappeared.

CASE 10 (Illustration IX).—Report by Dr. Ball. Male; farmer; married.

Case History.—Patient first came under observation for his mental condition in May, 1908, showing typical manic-depressive insanity with marked suicidal and homicidal impressions. Had always been considered an eccentric individual; rather flighty; ideals above the average; somewhat of a dreamer at times; excellent ability in his line, as orchardist and farmer; some literary tendency.

After a short residence in a private sanitarium, he was fairly well recovered, so as to be able to live with friends, but had his depressions and exhaltations, during which time he had to be carefully guarded.

Present Illness.—Examination in 1912 shows a double optic neuritis of the type described above, and of disc No. 4. (Page 61.) Also contracted and interlaced color fields. Notwithstanding a denial of venereal diseases, the assumption of a syphilitic base for his condition was made wholly on the eye findings. A subsequent positive Wassermann reaction was obtained.

Neurological Examination.—Atrophy: None. Hypertrophy: None. Movements: Voluntary, active and rapid; involuntary, slight tremor of lips at times. Plantar reflex: No response. Cervical skin reflex sluggish. Epigastric reflex normal. Cremasteric: Sluggish. Tendo Achilles reflex: Plus 2 on the right, slightly exaggerated on the left. Knee-kick greatly exaggerated on both sides, and a little more so on the left. Superior tendon reflexes all exaggerated. Sensation: All thresholds were hyper. Subjectively, there was a feeling of unreality at times, and various paræsthesias. Tender areas over tibiæ and sternum. Coordination fair for lower extremities, good for upper extremities. Cranial nerves were normal.

Treatment.—Immediately anti-syphilitic treatment was vigorously instituted with surprising improvement, which has reached the point, during the past year, where the patient has been able to earn a good living for himself and has been enabled to send money to his wife. Prior to the time when anti-syphilitic treatment was instituted he could not sustain a continued effort along any one line for any length of time. All sorts of schemes pervaded his brain, and an ultimate organized existence seemed impossible.

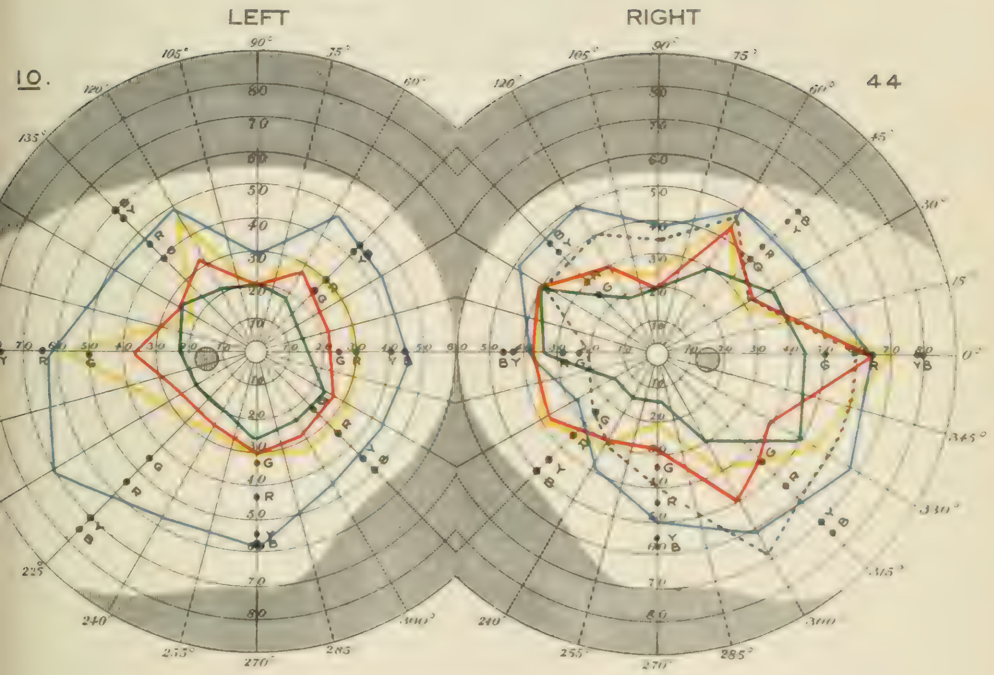


ILLUSTRATION IX

This man is faithful, taking his treatment at the present time; and although I do not consider him entirely recovered, the improvement has been so marked and so even, since the day of the beginning of the anti-syphilitic treatment, that I feel hopeful of a recovery of at least 90 per cent of his former efficiency.

Case 44 (Illustration IX).—Male; age, 36; musician. Right eye.

Primary syphilis eight years ago; treated with the ordinary potassium iodide, and protoiodide of mercury for two or three years. His physician now gives him a little treatment "every little while."

His vision is 20/15 and 20/20 respectively, accepts a cylinder plus .25 ax 90. Has constant trouble with irritative lacrimation and has come once or twice a year to have lenses refitted.

Optic discs deeply reddened and slightly cloudy. No p. o. This case is given simply to show a syphilitic with a direct history.

SYPHILIS AS THE ETIOLOGICAL FACTOR IN THE SO-CALLED FUNCTIONAL NEUROSES AND PSYCHOSES.

By JAU DON BALL, M.D.,
Professor of Neurology and Psychiatry, Oakland College of Medicine and Surgery, Oakland, Cal.

The study of etiology of disease has engrossed the medical mind since the time of Hippocrates, who believed that "the causes of all diseases are realities, provided we could find them out, and that they are not vague abstractions."[1]

It is most interesting to note the etiology of the various so-called functional neuroses as given in the leading text-books.[2] The following are examples:

Neurasthenia.—Heredity, emotional disturbances, mental exhaustion, overwork, loss of blood and of lymph, infective diseases, sexual excesses, masturbation, trauma.

Hysteria.—Heredity, mental excitement, mental strain, imitative instinct, loss of body fluids, masturbation, trauma, castration, chemical intoxication (lead, arsenic, mercury, bisulphide of carbon, chloroform, ether), infective diseases.

Migraine.—Heredity (90 per cent of cases), mental exhaustion, prolonged exhaustion, prolonged emotion, reflex origin, gout, bad air, variation in atmospheric pressure.

Exophthalmic Goitre.—Heredity (even through four generations), emotional excitement, difficult labor, infective diseases, trauma, neuropathic tendency, hysteria.

Deliberation on the above-cited and accepted "causes" will at once make apparent their incogitancy. The same "causes" are evidenced in a number of diseases which are clinically dissimilar. The phrase "functional neuroses" covers many flaws in our ability to diagnose correctly a group of symptoms referable to the nervous system.

The distinction between functional and organic diseases of the nervous system is a most important diagnostic problem. It is just as vital to ascertain the essential etiological factor in a functional disturbance of the nervous system as it is in an organic disease of the nervous system, it being essential for a correct prognosis and rational treatment.

A clean-cut division into organic and functional diseases of the nervous system cannot be made. Very few are the diseases coming under the head of " functional neuroses." The reverse may be stated concerning organic diseases of the nervous system.

Inasmuch as we commonly understand as antithetical, the terms " functional diseases " and " organic diseases," as applied to diseases of the nervous system, we usually think of them, on the one hand, as a class of cases exhibiting symptoms due to disturbances of function alone and without associated changes in structure; and, on the other hand, as a group of symptoms dependent on actual tissue-alteration.

Between these extremes—functional diseases and symptoms due to organic change—we have many gradations, many of which are slumped into functional neuroses, for the reason that the symptoms manifested are not characteristic of actual degeneration of some particular tracts or group of cells in the cord or the brain.

Still unsettled is the actual inciting cause, " the origin of the disturbance of the mechanism of the nerve, the pathogenic agent to which the nervous system succumbs." The unknown factor should be diligently sought for, and cognizance should be taken of every suggestion as to its identity.

True, it may be that the usual group of " causes " exhibited in our so-called functional neuroses, angio-neuroses, and trophoneuroses, has an important bearing and should not be disregarded. However, there must be, in my opinion, some definite cause underlying all; something which makes possible the conditions we find in our neurasthenics; hysterics, angio-neurotics, and trophoneurotics; something which prepares the soil and, when the seed is sown, produces the crop.

Syphilis has been suppressed, that is, as far as acknowledgment or discussion of it is concerned; for anyone daring to mention that this disease is with us is immediately hushed. Accordingly, syphilis has thrived in the darkness of ignorance and the prudery of ages. Medical men, even the most enlightened, conscientious members of the profession, have been blinded as to the far-reaching effects of this disease, and have allowed themselves to ignore the enormity of it, lulling themselves and their patients into false security. Generation after generation has seen the light of day, each fixed in the idea of superiority over its predecessor, yet each passing on its nerve-destroying, genius-making, criminal-producing, insane-compelling spirochæta.

Nervous and mental diseases are on the increase. Some cite as a reason our ability to recognize conditions better than formerly. The fact, remains, nevertheless, that the evidences of "nervousness" abound at present. External conditions, acting on the individual, incite dormant pathological internal conditions to activity, resulting in the neurasthenics and *functional neurotics*.

The syphilic etiology of tabes dorsalis and paresis is now recognized by neurologists and internists, and by recent investigations[3] the syphilitic etiology of disease of the motor columns of the cord has been determined.

We are aware that syphilis may be acquired by an individual who is utterly unconscious of having the disease, the symptoms being so light as to escape notice. Such an individual conscientiously denies ever having been infected; and when nervous symptoms loom up, ten or twenty years later, a drag-net is placed to catch all possible causes, and we find that this individual has recently suffered the loss by death of a very near and dear relative, and three years before had an attack of typhoid fever, and the past twenty months has had an attack of "grippe"; that his paternal grandmother was "nervous," other grandparents were normal, his father was a minister, and his mother a pure woman, but both somewhat "nervous." In this instance, we would have similar heredity, infective diseases, emotional excitement, overwork, worry, and grief. We pull in our net and examine its contents; but we fail to scrutinize the net which has enmeshed all of these.

The hypothetical individual cited above goes through all of the neurasthenic symptoms prior to general paresis; and finally the symptoms develop from those of mere irritation into those indicative of actual tissue destruction—a general paretic, a syphilitic.

The present-day aim, from a scientific medical standpoint, is preventive medicine. We are constantly seeking methods of preventing disease, in order to improve the health of the people, that they may increase their efficiency and propagate their kind free from constitutional defects and hereditary diseases. The following is of interest:

> "The human babies born each year constitute the world's most valuable crop. Taking the population of the globe to be one and one-half billion, probably about 50 million children are born each year. In the continental United States, with over 90 million souls, probably two and one-half million children are born annually. The potentiality of these two and a half million annually can be conceived as beyond computation. But, for better or worse, this potentiality is far from being realized. Nearly half a million of these infants die before they attain the age of one year, and half of all are dead before they reach their 23d year.
>
> "It is a reproach to our intelligence that we, as a people, proud in other respects of *our control of nature*, should have to support about half a million insane, feeble-minded, epileptic, blind and deaf; 80,000 prisoners; and 100,000 paupers, at a cost of over 100 million dollars per year. A new plague that rendered four per cent of our population, chiefly at the most productive age, not merely incompetent, but a burden costing 100 million dollars yearly to support, would instantly attract attention; but we have become so used to crime, disease, and degeneracy that we take them as necessary evils. That they were so, in the world's ignorance, is granted; that they must remain so, is denied."[4]

The plague rendering unfit so large a percentage of our population is, primarily, syphilis, with its associates, *alcohol* and poverty.

We can increase the potentiality of the race by lessening the number of deaths and increasing the efficiency of those living; and we can lessen the burden induced by our insane and criminals.

I wish to offer my theory regarding the etiology of nervous and mental diseases. In support of it, I offer some facts. I realize that the facts presented are not in sufficient array to prove conclusively my theory; otherwise, it would not any longer be a theory, but itself a fact. However, the material presented is suggestive, and is recorded as my preliminary evidence.

From our present knowledge of syphilis and of its various modes of gaining entrance to the economy, and its transmissibility to offspring to the second and third generations, and possibly to the fourth generation; and from the fact that it is recognized as one of the chief factors in physical, mental, and moral degeneracy; that it is often unrecognized and deliberately concealed; that many grave constitutional and organic conditions are produced by it, *e. g.*, tabes, general paresis, cerebrospinal syphilis, constitutional lues, resulting in involvement of the motor columns of the cord; and that many of these diseases are directly transmissible—as is exemplified in our juvenile tabetics and paretics, multiple sclerosis, and progressive muscular atrophy—I feel that I am justified in giving expression to my belief that the disease we know as *neurasthenia is of syphilitic origin, either acquired or hereditary;* and that the conditions we know as migraine, exophthalmic goitre, dementia præcox, and even manic-depressive insanity, are of syphilitic origin.

Certain it is, that constitutional syphilis, cerebrospinal syphilis, tabes, and paresis are either accompanied or preceded by symptoms which are neurasthenic, and which, in fact, cannot be separated from the disease we have learned to call neurasthenia.

Oppenheim quotes one man[5] as stating that neurasthenia is due to syphilis and is curable by antiluetic treatment.

In presenting any theory, one must be prepared to suffer criticism of the keenest kind; and whether or not the theory becomes a self-evident fact depends upon the interest aroused by its statement, and upon the resulting investigations which add facts in its support or accumulate evidence to undermine it. Time will be the essence of my theory.

We all are cognizant of the controversy that existed over the etiology of paresis and tabes. Few, indeed, would say that the spirochæta is not responsible for these conditions.

I can well remember when syphilis was only suspected as a cause of our most terrible mental disease, paresis. Little by little, evidence came to light and revealed its true nature. It was stated that 80 per cent to 90 per cent of such cases were syphilitic, the balance being due to something else. Then someone made the statement that 99 per cent were syphilitic, and the other one per cent suspicious. Then came the discovery of the spirochæta pallida by Schaudinn, which was followed by the finding of the spirochæta pallida in the brains of paretics.[6]

The history of the development of the etiology of general paresis is especially interesting, from the fact that it exhibited practically the same state of affairs we are now enmeshed in as regards an etiology for our so-called " functional " neuroses and psychoses. Everything under the sun was blamed—from vague abstractions, such as heredity (here taking heredity as it is usually connoted in the various text-books, a meaningless abstraction, without any consideration of its known principles), to emotional states, environmental conditions, masturbation, and the influences of various intoxications of external origin, and the infective diseases. These same things are cited as actual causes of a variety of so-called " functional " neuroses, and mental diseases.

Who among us can state for a *fact* that anyone of the causes usually given is the actual agent at work in any special case? There must be something besides emotional disturbances, mental exhaustion, overwork, loss of blood and lymph, sexual excesses, etc.

The internal conditions may be, and are, influenced by external conditions and psychical and emotional states; but not to a pathological degree, unless the internal conditions are rendered unfit by some undermining pathogenic agent.

Facts, and facts alone, count; and, until we learn to produce them, we shall continue in a state of doubt.

Most of us are prone to call a variety of symptoms referable to the nervous system, and not always typical and characteristic, as " neurasthenia." " Neurasthenia " is, indeed, a much-abused term, as is also " hysteria." Both are graveyards where are buried with satisfaction the ignorance of our present knowledge. Allow me to state at this point that the ghosts in these graveyards are most numerous and terrifying, and uncannily real. Our insane hospitals, our almshouses, our prisons are the meeting-places. Is it not significant that investigators are obtaining high percentages of positive Wassermanns in institutions for feeble-minded and in insane hospitals? A negative Wassermann is no reason for declaring that the individual is free from syphilitic taint, if other clinical evidences are present. Thousands of patients failing to give a positive Wassermann have other undoubted evidences of acquired or heredo-syphilis. *It is decidedly interesting, and certainly amazing, to note the similarity of symptoms in the various psychoses.* How intimately interwoven they are! We tend toward a simple classification at present, and are no longer perplexed by long mystifying tables of classification. We realize that insanity includes a host of different conditions, and we no longer think of a definite psychosis; but to quote " White,"[1] and are using such terms as " the dementia-paralytica group," " the manic-depressive group," "the hysteria group." To further delve, we can find that our hysteria group, our manic-depressive group, etc., have symptoms in common with our dementia-paralytica group.

This is certainly more than suggestive. Why not *one* mental disease—one great group differing only in degree, the symptoms manifesting themselves in the various recognized types of psychoses according to the selective action of the etiological agent, the degree of its potency and the natural resistance of the individual aided by such therapeutic agents as are in vogue.

Ultimately, we shall reach this one-group classification based upon a rational etiology. My work among the juvenile delinquents is showing up the great preponderance of heredo-syphilis among this class of criminals, which includes, of course, all forms of crime, from simple pilfering to the graver offenses, including homicidal tendencies, and moral offences. My statistics on these cases will be exhibited in the near future.

The evidences I wish to present are as follows:

Clinical.—History of infection in patient or ancestors. Stigmata of syphilis, acquired and hereditary (*e. g.*, Hutchinson teeth, scaphoid scapulæ—Graves' work along this line is of great value), iritis and iridocyclitis, strabismus, optic neuritis—here accepting Dr. Hayward Thomas's new classification of the optic discs, which establishes a new pathological fundus and reveals the fact that many discs which we have heretofore considered normal are not normal but direct evidences of optic neuritis. This has been proven to my absolute satisfaction. One can positively see the changes as depicted in Dr. Thomas's classification. It is interesting to note here that Antonnelli[8] maintains that many of the ocular stigmata of heredo-syphilis have been wrongly described as varieties of the normal fundus.

Reflexes.—Under this head I will state that the value of the skin reflexes and tendon reflexes is made much over in actual destructive lesions of brain and of spinal cord; but little or no consideration is given to them in so-called functional nervous diseases. My observations lead me to treat with respect an exaggerated knee-kick in neurasthenia, or in those conditions evidencing symptoms we often unthinkingly call neurasthenia—a great, unnamed group, the patients who go to physician after physician saying they have something wrong but manifesting nothing definite, who linger at the surgeon's doors, who are filled with pills and variegated diets, and whose ailment we call, for our mental relief, "neurasthenia," or "psychasthenia," or some other "thenia." An exaggerated knee-kick in these individuals means something. Also I maintain that an absent knee-kick is not normal, though a great many authors state that an absent knee-kick is normal in some individuals—one in 500. The normal responses of the various reflexes are pretty well established, and any deviation from the normal is not normal, and to me has its significance.

Color Fields.—I consider interlaced and sector-like contractions of the fields for color as an indication of syphilis. Our cases of actually known syphilis, acquired and hereditary, of the nervous system, show the characteristic color fields; similar color fields occurring in so-called functional diseases of the nervous system are to be taken as an evidence of syphilis, brain tumor, and intoxications.

Laboratory.—Wassermann tests of blood and spinal fluid. Luetic skin tests. Cell count of spinal fluid. I also consider leucocytosis of the blood as significant when the diseases in which it ordinarily occurs can be ruled out. To me hyper-leucocytosis in dementia præcox is decidedly significant.

Herewith is appended a chart exhibiting symptoms-diagnosis.

Diagnosis.	Number of cases.	Optic neuritis.	Contracted and interlaced color fields.	Scaphoid scapulæ.	Enlarged thyroid.	Positive Wassermann.	Negative Wassermann.	Acquired lues.	Hereditary lues.
Neurasthenia	151	151	36	70	27	24	7	38	75
Children manifesting neurasthenic symptoms	46	46	0	29	4	4	0	0	33
Manic-depressive insanity	27	27	14	21	8	8	8	2	20
Dementia præcox	6	6	3	6	6	4	2	1	5
Paranoia	4	4	2	3	2	2	1	2	2
Migraine	3	3	2	3	0	0	0	0	3
Mentally deficient children	41	..	..	30	..	18	23	..	41

CONCLUSIONS.

The assumption is that, when an individual presents a theory, such an individual has given considerable thought and time to his subject. In presenting the above idea concerning mental diseases in general, I have fully realized that many points in it are open to severe criticism; but I feel that I am justified in reaching my conclusions from the work done by Dr. Hayward Thomas and myself.

I realize that the statistics presented are as yet meagre; but they will be supplemented later by other statistics, which will include laboratory findings for each patient.

Decidedly suggestive is the fact that out of 151 adult neurasthenics, 151, or 100 per cent, showed optic neuritis, varying from mild to severe types; that $46\frac{54}{151}$ per cent showed scaphoid scapulæ; that 27, or $17\frac{133}{151}$ per cent, exhibited enlarged thyroid; that 38, or $25\frac{25}{151}$ per cent, admitted lues; and that 75, or $49\frac{101}{151}$ per cent, gave evidence of hereditary lues, either in stigmata present or in family history.

Of the children exhibiting neurasthenic symptoms, 46 in number, 33, or $71\frac{17}{23}$ per cent, either had evidences of hereditary lues or had parents who gave histories satisfactory to any careful clinician. These 46 children also had optic neuritis; and 29, or $63\frac{1}{23}$ per cent, had scaphoid scapulæ; 4, or $8\frac{16}{23}$ per cent, showed enlarged thyroid.

Concerning actual mental diseases classed as manic-depressive insanity and dementia præcox, I regret at this time that I am unable to present more cases. Of 27 manic-depressive cases, 27, or 100 per cent, showed optic neuritis; 14, or $51\frac{23}{27}$ per cent, showed characteristic color field; 21, or $77\frac{7}{9}$ per cent, showed scaphoid scapulæ; 8, or $29\frac{17}{27}$ per cent, exhibited enlarged thyroid.

The 41 mentally deficient children, mostly juvenile court cases, gave satisfactory clinical evidence of hereditary lues, either in signs or family history, for all; 18, or 43.97 per cent, gave positive Wassermann.

Great interest surrounds the three cases that undoubtedly were migraine. All 3, or 100 per cent, showed optic neuritis and scaphoid scapulæ; and all gave decidedly suggestive family histories.

The hysterical cases, 14 in number, gave 14, or 100 per cent, optic neuritis; 3, or $21\frac{3}{7}$ per cent, scaphoid scapulæ; 2, or $14\frac{2}{7}$ per cent, enlarged thyroid; 12 gave suggestive family histories.

The report on the Wassermann test is not complete for all cases presented, because, when this study was undertaken, laboratory facilities were not to be had at a reasonable rate for clinic patients. At the present time, this has been obviated; and in future, the report on the blood and on the spinal fluid will be given with all cases presented.

WASSERMANN REPORTS.

	Number made.	Positive.	Negative.
Neurasthenia	35	28	7
Manic-depressive insanity	16	8	8
Paranoia	3	2	1
Dementia præcox	6	4	2
Hysteria	8	5	3
Mentally deficient children	41	18	23

A number of my case histories are given under Dr. Thomas' article in this issue, for the reason that they are in conjunction with his charts of color fields.

REFERENCES.

1. Adams, Francis: The Works of Hippocrates.
2. Acknowledgment to Leading Text Books Nervous and Mental Diseases.
3. Spiller, Wm. G.: Journal of Nervous and Mental Diseases, September, 1912, Vol. XXXIX, No. 9.
4. Davenport, Chas. B.: Heredity in Relation to Eugenics.
5. Oppenheim, H.: Text Book of Nervous Diseases, Vol. II, page 1140.
6. The Occurrence of Syphilitic Organism in the Brain of Paresis. Journal of Nervous and Mental Diseases, March, 1913, Vol. XL, No. 3.
7. White, Wm. A.: Outline of Psychiatry, 4th Ed., 1913, page 16.
8. Marshall, C. F.: Syphilology and Venereal Diseases (Antonnelli quoted). 2d Ed., page 392.

THALAMIC GLIOSIS IN DEMENTIA PRÆCOX.

By MARY ELIZABETH MORSE, M.D.

(*From the Laboratory of the Worcester State Hospital, Worcester State Hospital Series No. 25, 1915–2.*)

Theoretically the thalamus offers a good field for investigation in dementia præcox. All sensory impulses except those of smell and possibly also of taste pass through it on their way to the cortex, and in addition it receives a contingent of impulses from the cerebellum. From it, on the other hand, fibers radiate to all parts of the cortex. A grave or extensive lesion of the thalamus would therefore in all probability alter or diminish the sensory data received by the cortex. In addition a central mechanism for the sympathetic is probably located in the vicinity of the third ventricle. It was the possibility of finding in the thalamus of dementia præcox cases a lesion demonstrable by ordinary histological methods, and one perhaps selective in its site, that prompted the present study.

There is considerable uncertainty as to the number of nuclei in the thalamus of the higher mammals, and as to the relations of these nuclei to various cortical areas. The differentiation of nuclei here is difficult, because they are not sharply separated from one another, and the cell type and arrangement in each are not strikingly distinctive. Subdivision, however, has been carried to a high point by Cècile Vogt[1] from the myelo-architectural, and by Friedmann[2] from the cyto-architectural standpoint. The former author distinguishes 41 fields in the monkey thalamus, and the results of Friedmann agree essentially with hers.

The chief nuclei, which are recognized almost universally, are the anterior; the median, with its posterior expansion, the pulvinar; the lateral group, which is composed of an upper part, the lateral nucleus proper, and a lower part, the ventral nucleus (sensory nucleus of Cajal); the ganglion habenulæ, and lastly the central gray matter surrounding the third ventricle. The cells of these nuclei are sufficiently characteristic in form and grouping for the identification of these areas in a broad way. The lateral and median geniculate bodies are continuous with the thalamus and should be considered as a part of it.

---

[1] Jour. f. Psych. u. Neur., Bd. XII, 285, 1908.

[2] Jour. f. Psych. u. Neur., Bd. XVIII, 309, 1911.

From a phylogenetic standpoint[3] the chief part of the ventral nucleus, together with the ganglion habenulæ, are the oldest parts of the thalamus. They are present in fishes and are well developed in reptiles and birds. The anterior and median nuclei are also of pale-encephalic origin, and in the lower vertebrates are connected almost exclusively with the corpus striatum. The high development of the pulvinar, on the other hand, is characteristic of the primates. With the evolution of the neopallium, the paleothalamic nuclei have acquired connections with the forebrain, with a corresponding increase in complexity and the resulting development of the neothalamus.

All sensory paths entering the thalamus (excluding for the moment the geniculate bodies) end in the ventral nucleus. The chief of these tracts are the main fillet, most of the fibers of which arise in the nuclei of the columns of Goll and Burdach; the spinothalamic tract, the central tract of the cranial nerves, derived from the sensory nuclei of the afferent cranial nerves, and lastly the central tract of the trigeminus. These tracts without doubt carry the kinesthetic, thermal, tactile and pain impulses from the extremities, trunk, head and viscera. In addition, the ventral nucleus receives fibers from the dentate nucleus of the cerebellum, via the superior peduncle, and with these are combined also fibers from red nucleus. The geniculate bodies are continuous with the posterior part of the thalamus. The lateral receives fibers from the optic tract; the median is the end station of many of the fibers of the secondary acoustic path.

The connections of the thalamic nuclei with various cortical regions have recently been studied by Sachs[4] in the cat and monkey by the production of electrolytic lesions, and by Mingazzini[5] from the standpoint of human pathology. Sachs' conclusions are that functionally the thalamus is made up of two relatively independent divisions. The inner, which consists of the anterior and median nuclei, is in association with the caudate nucleus and rhinencephalon, and, in the cat and monkey, sends no fibers to the cortex. The outer division, which is represented by the ventral and lateral nuclei, is closely connected with the pre- and postcentral cortices, the fibers to the precentral being more numerous than those to the postcentral, and differing from them also morphologically.

---

[3] See Edinger. Bau der Nervösen Zentralorgane, 1911.

[4] Brain, XXXII, p. 95, 1909.

[5] Folia neurobiolog., VII, Nos. 1 and 2, Jan. and Feb., 1913.

Mingazzini,[5] from a study of the atrophy of the thalamus following atrophy of the occipital, parietal and the posterior half of the temporal lobes, concludes as follows: The median nucleus is connected with the prefrontal gyri; the anterior part of the ventral nucleus with the operculum and the anterior part of the precentral convolution; the lateral nucleus with the second parietal, the precentral and the supramarginal and angular gyri; the proximal half of the anterior nucleus with the prefrontal region, the distal half with the paracentral lobule.

The groups of cells on the sides and floor of the third ventricle appear to be the site of a central apparatus for the sympathetic. Karplus and Kreidl[6] conclude from their recent experiments on monkeys and carnivora that there is a central mechanism for the cervical sympathetic situated chiefly in the hypothalamus. This center is interposed in the path from the frontal region to the cervical sympathetic and mediates the pupillary reflex in response to painful stimuli.

In a case of focal lesion in the region of the ventral part of the thalamus Schrottenbach[7] has demonstrated by the plethysmographic method loss of the vasomotor reactions accompanying psychic reactions. He believes that this center forms a link between the central processes and the peripheral sympathetic innervation, and that it mediates the vasomotor reactions accompanying psychic states.

Selection of Material.—From the autopsy material of the Worcester State Hospital was collected a series of ten cases of dementia præcox who had died sufficiently young to exclude ordinary senile and arteriosclerotic changes in the brain, and from causes which would not produce confusing nervous lesions. A control series of seven cases of approximately the same ages was prepared, this consisting of two cases of depressions of the involutional period, two of epilepsy, and one each of manic depressive, imbecility, and chronic alcoholism with delirium tremens. Two cases of cerebral arteriosclerosis and one each of senile dementia and senile deterioration in manic-depressive insanity were added, merely to estimate the degree of gliosis to be expected in these conditions.

---

[5] Folia neurobiolog., VII, Nos. 1 and 2, Jan. and Feb., 1913.

[6] Pflügar's Arch. f. Physiol., Bd. 135, 401, 1910.

[7] Zeitsch. f. d. ges. Neurologie. u. Psychiatre, Orig. XXIII, H. 4/5, 431, 1914.

Technical Methods.—The brains had been preserved in formalin for periods varying from one month to three years. The hemispheres had been separated, and the pons and cerebellum removed by cutting the cerebral peduncles. A rectangular block of tissue was cut from each hemisphere, passing anteriorly through the anterior commissure, posteriorly just behind the pulvinar, and above along the under surface of the corpus callosum. Below, the block included the hypothalamus, corpora quadrigemina and the cerebral peduncles. Each large block was then cut in the frontal plane into four segments, which were hardened in alcohol and embedded in paraffin. Two sections were cut from the anterior surface of each block; one was stained with thionin to bring out the cells, while the other was put for 24 hours in Zenker's fluid and stained by Mallory's phosphotungstic-acid-hematoxylin method for neuroglia. A series of four sections was thus obtained from each side of the thalamus, passing through approximately the same plane on both sides, and comparable planes in the different thalami. The first section passed anterior to the thalamus through the lenticular and the head of the caudate nuclei. The second passed through the anterior nucleus, and the most anterior parts of the median, lateral and ventral nuclei; the third through the centers of the median, lateral and ventral nuclei; the fourth through the pulvinar and the anterior corpora quadrigemina.

There were available for study in connection with the thalami routine sections from six cortical areas, the cerebellum, medulla, and three levels of the cord, stained by the Nissl and Weigert methods and by Mallory's neuroglia stain.

Cases.—Brief abstracts of the clinical histories and of the microscopic examination of the thalamus and other parts of the central nervous system are as follows:

Case I (autopsy No. XV-68).—A case of the paranoid form of dementia præcox of 19 years' duration in a woman æt. 57. Father alcoholic. Two nieces insane. One of patient's children is dull. Psychosis began gradually at 36 years and was evidenced by unreasonable miserliness and erratic conduct in business relations.

Hospital residence 9 years.

On admission patient was quiet, oriented, and docile. Grasp on surroundings and memory for recent and remote events poor. She apparently reacted to hallucinations; had vague ideas of influence through mesmerism and was suspicious. Talked in an incoherent, senseless way. No insight. Physical examination negative.

During her hospital stay patient showed a slowly advancing deterioration, with auditory and visual hallucinations and ideas of reference and persecution. Died of dysentery.

The brain showed a mild cortical atrophy with slight increase of density to palpation in the frontal and superior precentral zones. Microscopically, slight focal losses of pyramidal cells, moderate zonal gliosis of hippocampal cortex, and focal gliosis of the frontal cortex.

Thalamus.—No abnormalities noted in the gross. The cells stain well; are heavily pigmented. No satellitosis. Very small amounts of green perivascular pigment. The vessel walls are not remarkable. Sections stained for neuroglia show a moderately heavy superficial layer, with penetration inward in a few places, but without active cells. Considerable perivascular gliosis throughout the thalamus. No foci of gliosis.

Lateral and Median Geniculate Bodies.—The cells are normal and there is no gliosis.

Hypothalamus.—Gliosis of the same degree and distribution as in thalamus.

Lenticular and Caudate Nuclei.—Slight perivascular gliosis; otherwise negative.

Case II (autopsy XV-74).—A case of catatonic hirntod after an illness of eight days in a woman 22 years old. This case has been reported by Orton.[8] The brain showed chromatolysis of the pyramidal cells in the various cortices, particularly marked in the Betz cells; amœboid glia cells, and large accumulations of lipoid substances in the subcortical white matter, ganglion cells, glia cells, and the phagocytes of the perivascular spaces. No fibrillar gliosis.

Thalamus.—Not remarkable macroscopically. The nerve cells throughout the thalamus are blurred, stain faintly, show chromatolysis, and contain small amounts of green pigment. Many are surrounded by five or six satellites, some of which suggest neurophages. A small amount of green perivascular pigment is present (less than in cortex). There is apparently an increase of glia nuclei about the vessels. As the technical method was not adapted to bringing out the amœboid character of the glia cells or the lipoid deposits in the white matter, no definite statement can be made about them, but they are probably present. No fibrillar gliosis.

---

[8] Am. Jour. of Insan., LXIX, No. 4, April, 1913.

Lateral and Median Geniculate Bodies.—The cells stain better than in the thalamus and there is no undue satellitosis.

Hypothalamus.—Conditions as in thalamus.

Caudate and Lenticular Nuclei.—The cells stain as in the thalamus, but there is no satellitosis.

Case III (autopsy No. XV-79).—A case of catatonic dementia præcox of at least four years' duration in a man 41 years old. Mother was feebleminded in latter part of her life. An uncle and a sister of patient are in insane hospitals. Patient was always peculiar. At 37 years he had an outbreak of impulsive violence, for which he was committed to an insane hospital. Made a partial recovery, but was committed to Worcester State Hospital a year later. On admission patient was quiet and orderly; oriented with a fair grasp on surroundings. Memory for recent events impaired, for remote events good. Talked in rambling, disconnected sentences. Poor judgment. No insight. Physical examination—left pupil larger than right, both react to light and accommodation. Right knee kick greater than left.

For the first two years of his stay patient was quiet and industrious. He then had a period of excitement characterized by destructiveness, restlessness and exhilaration. Said he " felt ossified and suspended from the earth." Died of septicemia. Autopsy showed, in addition, old infarcts of the kidneys and chronic otitis media; in the brain slight leptomeningitis, subpial edema, and granulations on the floor of the fourth ventricle. Microscopically, satellitosis, possible cell losses in postcentral and temporal cortices, a focus of atrophy with gliosis in the frontal region, hyaline in the vessel walls of the occipital cortex and atrophy of a cerebellar lamella. Practically no subpial gliosis.

Thalamus.—Not notable macroscopically. The nerve cells stain normally, and there is no satellitosis. The superficial glia is much thickened and in places radiates inward, accompanied by rather numerous glia cells. In these areas there is some perivascular gliosis. In the outer part of the right ventral nucleus in about its central portion antero-posteriorly, is a focus 2.5 mm. in diameter in the stained specimen, in which there is a loss of nerve cells. This area surrounds a group of vessels, the walls of which, however, show no evident change. There is a suggestion of alteration of the myelin sheaths. The focus is filled in with loose-meshed glia, containing rather numerous nuclei and some phagocytes. The anilin blue stain shows no increase of collagen fibers in this area.

Lateral and Median Geniculate Bodies.—Negative.

Hypothalamus.—Superficial gliosis as over thalamus.

Lenticular Nuclei.—Nerve cells not remarkable. No gliosis. A perivascular lymphocytic infiltration in a few places.

Case IV (autopsy No. XVII-39).—A case of late catatonia of five years' duration in a 52-year-old woman. Psychosis began with a period of confusion, destructiveness and depression. Patient expressed the idea that she was "dead and buried."

Hospital Residence.—Four and a half years. On admission patient was resistive, apprehensive, disoriented, and without insight. Answers were irrelevant and trifling. Physical examination not significant. She had a period of excitement and destructiveness six months after admission, but the rest of the time she was apathetic. Was resistive and at times mute. Hallucinations of sight and hearing. Increasing dementia. Death from pernicious anemia.

The central nervous system showed encephalitic foci in precentral cortex and in cervical and lumbar cords; satellitosis; moderate subpial and subcortical gliosis and gliosis in Goll's columns.

Thalamus.—Normal macroscopically. The nerve cells stain well and there is no undue satellitosis. Small amount of green perivascular pigment. The subependymal glia forms a very broad fibrillar layer in which are numerous fibril-forming cells. The median nucleus contains numerous large vesicular glia nuclei and some strands of fibrils. Perivascular gliosis is prominent near the surface. No gliosis in other nuclei. Comparison of the thalamus with neopallial cortices, ventricular surface of the hippocampus, and the medulla shows that the superficial glia is far heavier in the former than in any of the other situations and that active glia cells are not present in notable numbers elsewhere.

Lateral and Median Geniculate Bodies.—Not remarkable.

Hypothalamus.—The superficial glia is equally as heavy as over thalamus, and fibril-forming cells are numerous in the underlying tissue.

Lenticular and Caudate Nuclei.—No gliosis.

Case V (autopsy No. XVII-43).—A Finn woman, æt. 34. Psychosis began gradually 10 months before admission with auditory hallucinations and ideas of persecution. On admission patient was quiet, imperfectly oriented and without insight. During her stay she was resistive, and noisy by crying and talking. Death three and a half months after admission from tubercular enteritis.

The brain showed a satellite reaction and small amounts of perivascular pigment. Practically no gliosis.

Thalamus.—No gross abnormality. Microscopically there is a decided suggestion of a scarcity of nerve cells in the ventral and lateral nuclei. The cells are heavily pigmented. No satellitosis. The glial surface mat is in general delicate, but in a few places it dips into the stratum zonale, and is then accompanied by perivascular gliosis. No deep foci of gliosis.

Lateral and Median Geniculate Bodies.—Not remarkable.

Hypothalamus.—The superficial glia is rather thicker than over the thalamus and a few fibril-forming cells are present on the ventricular floor.

Caudate and Lenticular Nuclei.—Not remarkable.

Case VI (autopsy No. XIII-3).—A case of three years' duration, probably belonging to the paraphrenic group, in a woman of 44. Father peculiar and two paternal cousins were cases of dementia præcox. Patient was always eccentric; was seclusive and parsimonious. At 41 years she began to act strangely; was found on a relative's doorstep in a snowstorm at midnight, etc. Gave no explanation. Was irritable, and had outbreaks of impulsive violence. Increasing dementia. On admission patient was quiet and indifferent. Comprehended questions with difficulty and answered slowly and evasively with monotonous reiteration. Orientation and memory good; grasp on surroundings poor. No evidence of hallucinations. Physical examination showed facial tic and internal strabismus. Coarse tremor of tongue. Death four months after admission from lobar pneumonia.

The brain presented a slight chronic leptomeningitis, slight subpial edema, and a rather marked increase in density to palpation of the convolutions bordering on the central fissures, and of the upper portions of the frontal fields, including chiefly pre- and postcentral and intermediate precentral fields. Microscopically, mild degenerative changes in the cortical nerve cells, satellitosis, perivascular pigment; very slight subpial gliosis, but considerable subcortical gliosis in postcentral, frontal and hippocampal areas.

Thalamus.—Both thalami give a rather marked suggestion of induration. In both there is a suggestion of nodular induration behind and on a level with the gray commissure. On the right this nodule forms a definite mass; on the left it is considerably less prominent. The whole of the posterior surface of both thalami has a wrinkled appearance suggesting atrophy.

The left thalamus was unfortunately spoiled during the technical routine. Sections of the right show a large focus of gliosis, the central part of which corresponds in position to the lamina medullaris interna. This area extends mesially to the midline; laterally it radiates into the ventral nucleus, and posteriorly sends a network of broad bands into the pulvinar. Microscopical examination shows that it is chiefly the median and ventral nuclei and the pulvinar which are encroached upon by the focus. The anterior nucleus is relatively free from gliosis, as is also the anterior part of the median. The lateral nucleus is narrowed by an ingrowth of glia from the internal capsule. The entire posterior part of the thalamus presents a dense fibrillar gliosis. The large gliotic focus is composed of a close network of fibrils containing numerous nuclei, which in the denser portions are small and pyknotic; in the looser areas, large and vesicular. Hyaloid droplets are present. The vessels show a marked perivascular gliosis and moderate numbers of lymphocytes in the perivascular spaces. The vessel walls are not thickened. A thick layer of fibrillar glia covers the ventricular surface and sends prolongations inward, some of which join the large focus. There is a remarkably good representation of nerve cells in the various nuclei, considering the degree of gliosis. The cells are fairly fell preserved; contain considerable lipochrome, and are usually surrounded by small numbers of satellites.

Lateral Geniculate Body.—Not remarkable except for heavy superficial glia. Median geniculate body negative.

Hypothalamus.—The superficial glia is thick and numerous active cells are present beneath the surface. Radiations from the gliotic area in the pulvinar extend to a slight extent into the hypothalamus.

Lenticular Nucleus.—Quite a pronounced fibrillar gliosis accompanying the strands of nerve fibers, but not elsewhere.

Caudate Nucleus.—The superficial glia is dense and shows slight focal thickenings. One large radiating perivascular focus of fibrillar glia, with active cells at its periphery, is present. No other gliosis in section.

Case VII (autopsy No. XIII-10).—A case of paranoid dementia præcox of six years' duration in a 45-year-old man. Family history and patient's early history not remarkable. At 39 years he had a fever resembling typhoid, and was never mentally well afterward. Became irritable, lost affection for family, and developed an elaborate system of delusions of persecution by hypnotism.

Hospital residence four years.

On admission patient was intelligent in appearance, but was suspicious, irritable and reticent. Orientation and memory were good, but grasp on surroundings was superficial and insight absent. Patient stated that he was followed by a man, whom he had seen and heard, who was able by hypnotism to throw parts of his body into patient. All patient's movements, thoughts and words were a duplicate of his persecutor's. Itching, tickling, and painful sensations, of which the patient complained continuously, were the methods of torture, the object of which was to drive him insane. Physical examination on admission negative. No Wassermann reaction done. During his residence patient was controlled by his delusions, and showed a slowly progressing deterioration. Sudden death due to aneurysmal dilatation of the left ventricle.

The brain presented slight atrophy at the frontal poles and an increase of density of the pre- and postcentral gyri. Microscopic examination showed a mild satellitosis and small perivascular deposits of pigment; practically no increase of glia over the neopallial cortices or the ventricular surface of the hippocampus; a slight increase of glia in the white matter of the cerebellum, a moderate thickening on the floor of the fourth ventricle; a marked fibrillar gliosis in the posterior columns of the cord and a lesser gliosis in the lateral columns.

Thalamus.—No gross atrophy. Microscopically, the nerve cells are in good condition and there is no undue satellitosis. Small amounts of pigment in the perivascular spaces. The ventricular surface is covered with a heavy layer of fibrillar glia, and the median nuclei contain very numerous large glia cells, the fibrils of which form a prominent network throughout the nuclei. The glia cells are scattered diffusely, but there are also foci in the centers of the nuclei, in which they are more closely set. These areas are visible macroscopically. Perivascular gliosis is also marked throughout the median nuclei. A similar active gliosis is present in the pulvinar. The ventral and lateral nuclei show no gliosis.

Hypothalamus.—There is a marked fibrillar gliosis about the floor of the third ventricle, radiating for some distance inward, and containing numerous active cells.

Lateral and Median Geniculate Bodies.—Not remarkable.

Caudate and Lenticular Nuclei.—The cells are not remarkable, and there is no gliosis.

Case VIII (autopsy No. XIII-46).—A case of catatonic dementia præcox of six months' duration in a girl of 17. One maternal cousin was epileptic and another insane. Patient went half way through high school and was a bright scholar. Was always very nervous, stubborn and "hysterical." She became wayward, acquired syphilis, and was sent to an industrial school. The psychosis began acutely six months before admission with a period of confusion and destructiveness, accompanied by auditory and olfactory hallucinations. During the first part of her hospital stay she was confused, often mute, and at times showed a tendency to cerea flexibilitas. Later she was quiet, inactive, and silly in manner. She showed secondary syphilitic lesions. The serum gave a positive Wassermann reaction, the cerebrospinal fluid a suggestion of a positive reaction, but no pleocytosis or increase of globulin. Patient tolerated mercury and iodide badly, and grew progressively weaker. Autopsy showed an enteritis and gastritis, acute nephritis, and atrophy of the ovaries. Microscopically, fatty infiltration of the myocardium and liver, and necrosis of the splenic follicles.

Brain.—The paracentral and marginal gyri on the left were very broad, were simple in arrangement, and not well approximated. The nerve cells in the various cortical areas showed mild degenerative changes. There were lipoid accumulations in the nerve cells and perivascular spaces, and a slight satellite reaction. No gliosis.

Thalamus.—Is of normal contour. The nerve cells stain well as a rule, although there are a few shadows. The cells contain considerable lipochrome. A marked satellite reaction is present, some of the cells having the appearance of neurophages. A suggestion of a cell body is seen about some of the glia nuclei surrounding the vessels. No gliosis.

Lateral and Median Geniculate Bodies.—Show a slight satellitosis.

Hypothalamus.—Conditions as in thalamus.

Lenticular and Caudate Nuclei.—Some of the cells show a satellite reaction, but this is not as general or as marked as in the thalamus.

Case IX (autopsy No. XIV-7).—A case of paranoid dementia præcox of one year's duration in a man 29 years of age. Father was intemperate. Patient always showed some eccentricities of conduct. Psychosis began gradually with visual hallucinations and ideas of reference and persecution.

On admission patient was tractable and responded promptly and relevantly. Was oriented, but without insight. Marked cyanosis of the hands and dermatographia. During his stay patient showed steady mental failure; was defiant and violent in response to somatic sensations ("shivering all over" and "can't breathe"), suspicious of poisoning, and finally refused food altogether on account of religious delusions. Tube-feeding was necessary for three months before death, which was due to abscesses of the lung.

Macroscopically the brain showed a slight general atrophy, and subpial edema; microscopically, a moderate satellite reaction and a mild fibrillar gliosis on the ventricular surface of the hippocampus, the floor of the fourth ventricle, and in the white matter of the cerebellum.

Thalamus.—No gross abnormality. Microscopically, the cells are well preserved. A mild satellite reaction is present, which is more prominent in the pulvinar than in the other nuclei. The superficial glia is very slightly thickened and in a few places dips into the underlying tissue, accompanied by a few active cells, and slight perivascular gliosis.

Hypothalamus.—A slight thickening of the superficial glia as over the thalamus.

Lateral and Median Geniculate Bodies.—The former is negative; the latter shows a mild satellitosis.

Caudate and Lenticular Nuclei.—Not remarkable.

Case X (autopsy No. XIV-27).—Dementia præcox of three years' duration in a 40-year-old Irish woman. Waitress. Father was alcoholic. At 37 years patient gave up work on account of somatic delusions. She was arrested for vagrancy, but after examination was sent to an insane hospital. During her stay at the Worcester State Hospital patient was apathetic, contented and neat, volunteered no conversation, but answered relevantly and coherently. Orientation, memory and grasp on education were good. No delusions were elicited, but hallucinations of sight and hearing were probably present. No insight. Physical examination was not remarkable, and the Wassermann reaction on serum and cerebrospinal fluid was negative. Patient died following an operation for carcinoma of the sigmoid.

The cerebral convolutions were well filled out. The entire region anterior to the percentral gyri gave a suggestion of increased firmness. Microscopically, the nerve cells in the various cortices showed mild degenerative changes. Satellitosis in the deeper layers. The perivascular spaces were dilated and contained scattered lymphocytes and pigmented phagocytes. The subpial glia was not increased, but there was a moderate fibrous gliosis in the central core of the cerebellum.

Thalamus.—Was not large in the gross, and appeared somewhat firm. Nerve cells are present in good numbers and stain well. The majority of them are surrounded by satellites, some of which have the appearance of neurophages. There is a considerable lymphocytosis, accompanied by the deposition of pigment, about one of the vessels in the pulvinar. The subependymal glia over the anterior part of the thalamus is not especially increased, but over the pulvinar it is thick. Beneath the surface of the median nuclei are small numbers of active glia cells and also a perivascular gliosis. No active gliosis about the gray commissure. There is a heavy perivascular gliosis throughout the pulvinar and in most places an increase of glia nuclei with a network of fibrils. In the lower part of the right ventral nucleus is an area containing considerable numbers of active glia cells and a prominent fibrillar network. Nerve cells are present in this area, however, in apparently normal numbers and distribution.

Hypothalamus.—Satellitosis is more marked than in the thalamus, and a few shrunken, opaque, darkly staining nerve cells with excentric nuclei are present. The superficial glia is increased, and there are a few active glia cells beneath the ventricular floor.

Lateral Geniculate Bodies.—Show nothing notable.

Median Geniculate Bodies.—Satellitosis of the same degree as in thalamus.

Caudate and Lenticular Nuclei.—Show a satellite reaction resembling that in the thalamus. The subependymal glia is heavy and there is some perivascular gliosis near the surface.

The findings in the control cases may be summarized in a few words:

1 (autopsy No. XVII-49). A case of manic-depressive insanity in a woman of 41 years; a single attack of the depressed phase lasting five years. Death from acute colitis.

The brain showed a slight satellitosis, a slight perivascular pigmentation, and an absence of gliosis.

Thalamus.—Not notable macroscopically. The nerve cells stain normally and there is no undue satellitosis. No perivascular pigment. The superficial glia over the anterior part of the thalamus is delicate; over the pulvinar it is somewhat heavier, and there are a few fiber-forming cells beneath the surface.

Lateral and Median Geniculate Bodies.—Not remarkable.

Hypothalamus.—The superficial glia is slightly thicker than over the thalamus and a few fibril-forming cells are present.

Caudate and Lenticular Nuclei.—Not remarkable.

2 (autopsy No. XVI-40). A depression of the involutional period, of 18 months' duration, in a woman 54 years old. Symptoms of central neuritis for two weeks before death.

Autopsy showed chronic endocarditis, chronic nephritis, cortical atrophy and increase of density in frontal and central gyri. Microscopically the axonal reaction in the giant pyramids of the precentral cortex, prominent satellitosis in the various cortices, great numbers of hyaloid droplets; no gliosis in the cerebrum, but a peripheral gliosis in medulla and cord.

Thalamus.—Not remarkable macroscopically. The nerve cells contain large amounts of lipochrome, but are otherwise not remarkable except in the pulvinar where there are a few cell shadows and a slight satellitosis. The glia over the anterior and median parts of the thalamus is not increased, but over the pulvinar it shows focal thickening with slight extension inward, but with very few cells. Considerable perivascular pigment.

Geniculate Bodies.—Not remarkable.

Hypothalamus.—The cells resemble the thalamus. The glial mat bordering the lower part of the third ventricle is thicker than over the thalamus, but does not radiate inward.

Lenticular and Caudate Nuclei.—Pigmented satellites are fairly numerous. No gliosis.

3 (autopsy No. XVII-68). An unclassified psychosis of the involutional period in a woman of 50 years. Onset at 47 years with worry, agitation,

and ideas of reference and persecution. Patient cleared up somewhat after a few months, but later lapsed into a mute, confused and agitated condition. Death from acute colitis.

Microscopically the brain showed normal cortical architecture, small amounts of green perivascular pigment, slight zonal gliosis, and an absence of arteriosclerosis.

Thalamus.—Normal macroscopically. The nerve cells contain considerable lipochrome, but otherwise appear normal. A number of vessels in both thalamus and hypothalamus are surrounded by lymphocytes. Green perivascular pigment is present in moderate amount. The subependymal glia over both the thalamus and hypothalamus is slightly thickened, but does not extend inward, and there are no deep foci. Slight perivascular gliosis particularly near the ventricular surface.

Lenticular and Caudate Nuclei.—Not remarkable except for lipochrome content of nerve cells.

4 (autopsy No. XVI-1). A low-grade imbecile, dying at 40 years from chronic nephritis. The brain showed lack of approximation of the frontal convolutions, thickening of the pia, and small foci of disintegration in frontal cortex, medulla and cerebellum, increase of subependymal glia over the hippocampus and a perivascular focus of gliosis in the medulla.

Thalamus.—Negative macroscopically. The nerve cells are heavily pigmented, but are otherwise not notable. No satellitosis. No increase of glia, either superficial or deep.

Geniculate bodies, hypothalamus, and caudate and lenticular nuclei are not remarkable.

5 (autopsy No. XVII-33). A case of delirium tremens in a chronic alcoholic 42 years old. The gross autopsy findings were cardiac hypertrophy and dilatation, infarct of the lung, and subpial edema. The brain showed degenerative changes in the cortical nerve cells, marked satellitosis, and practically no gliosis.

Thalamus.—Macroscopically not notable. Most of the nerve cells appear normal; a few are shrunken and angular and stain deeply. Clusters of four to five satellites are found about some of the nerve cells, but on the whole satellitosis is not prominent. There is a rather dense glial network on the ventricular surface, but no deep foci or active cells.

6 (autopsy No. XVI-46). A much demented epileptic woman, aet. 42, dying of acute colitis. Brain weighed 1210 gms., and showed no gross atrophy and no increase of consistence in any particular region. Microscopically the cortex in many places gave the impression of being thin, but there was no obvious scarcity of nerve cells. A mild satellitosis was present, and a slight peripheral gliosis in medulla and cord.

Thalamus.—The nerve cells contain much lipochrome, but otherwise stain well. The subependymal glia is moderately thickened, and is prolonged inward for a short distance along the vessels, but there are no active cells, and no deep gliosis.

Geniculate bodies.—Not remarkable.

Hypothalamus.—Peripheral gliosis as over thalamus.

Caudate and Lenticular Nuclei.—A superficial gliosis over the head of the caudate, but no deep foci.

7 (autopsy No. XIII-50). A case of epilepsy of three years' duration in a man 34 years old. Death in status epilepticus. The brain showed degenerative changes in the nerve cells, intense satellite reaction with the presence of neurophages, amœboid glia cells about the vessels, collections of lipoid materials around the vessels and in nerve cells, and a marked fibro-cellular gliosis in the cornu ammonis.

Thalamus.—Not notable macroscopically. Changes in nerve cells and satellitosis resemble those in cortex, but are rather less intense. Amœboid glia cells are present. Lipoid deposits are less prominent than in cortex. The glia over the thalamus is in general not thickened, but in a few places accompanies the vessels inward.

Geniculate Bodies.—The cells of the median resemble those of the thalamus; those of the lateral are free from satellites and stain normally.

Hypothalamus.—The superficial glia is very heavy, and numerous active cells are present beneath the surface.

Caudate and Lenticular Nuclei.—The cells stain well, but a marked satellitosis is present. The glia over the head of the caudate nucleus is much thickened, but does not radiate inward to any extent. No gliosis in the lenticular nucleus.

Arteriosclerotic and senile cases:

8 (autopsy No. XIII-6). A man, 61 years old. Symptoms dating back nine years. Major anatomical diagnoses were bilateral acute otitis media and coronary sclerosis. The cortex showed thickening of the small arteries, moderate perivascular cell losses, heavy lipochrome content of nerve cells, zonal gliosis, and foci of softening in the right postcentral convolution.

Thalamus.—Not remarkable macroscopically. The nerve cells contain much lipochrome. The arteries are markedly sclerotic. There is an extremely heavy layer of fibrillar glia over the ventricular surface, including the head of the caudate nucleus, the thalamus, and hypothalamus. Moderate numbers of glia cells with coarse fibrils are situated at short distances below the surface, and there is considerable perivascular gliosis throughout the structures. No focal gliosis.

Geniculate Bodies.—Not notable.

9 (autopsy No. XIII-28). A case of cerebral arteriosclerosis of three years' duration in a woman 60 years old. Cysts of softening in both temporal regions. Microscopically the brain showed thickening of the small arteries, with perivascular devastations, heavy lipochrome deposits in nerve and neuroglia cells, and very moderate zonal and perivascular gliosis.

Thalamus.—At the upper pole of the left anterior nucleus is a focus of softening surrounding several almost obliterated vessels. The area is filled with granule cells, but shows no surrounding glia reaction. The subependymal glia is very heavy and extends deeply inward. There is a marked perivascular gliosis and some increase of small glia nuclei throughout the thalamus. The gliosis, however, is not active and there are no deep foci. Miliary hemorrhages on floor of third ventricle.

Caudate and Lenticular Nuclei and Hypothalamus.—Gliosis as in thalamus.

Geniculate Bodies.—Negative.

10 (autopsy No. XIV-33). Senile deterioration in a case of manic-depressive insanity—a woman, 78 years old, dying of chronic nephritis. Brain showed very marked atrophy in the frontal, central and parietal regions. The most prominent microscopic changes were satellitosis, perivascular accumulations of lipoid pigment and heavy subpial gliosis. Arteriosclerosis was slight and no senile placques were found.

Thalamus.—The nerve cells stain well. Mild satellitosis. Very little arteriosclerosis. There is in places considerable perivascular infiltration of lymphocytes, polymorphonuclear leukocytes and pigmented phagocytes. There is marked thickening of glia about the sides and floor of the third ventricle and moderate perivascular gliosis throughout the thalamus.

Caudate and Lenticular Nuclei.—Satellitosis and perivascular infiltration as above. Gliosis about some of the large arteries in the lenticular nuclei. Small numbers of active glia cells near the ventricular surface, but no thickening of the peripheral glia layer.

Hypothalamus.—Shows thickening of the superficial glia, but no deep foci.

11 (autopsy No. XIV-35). A case of senile dementia of six years' duration in a woman 76 years old. Death from lobar pneumonia. The brain showed cell losses in the cortex, senile placques, zonal and cortical gliosis, and moderate arteriosclerosis.

Thalamus.—The nerve cells are heavily pigmented, but are otherwise not remarkable. Mild satellite reaction in the pulvinar. Over the anterior and middle parts of the thalamus the glia is moderately heavy. There are fairly numerous large, active glia cells in the various nuclei, and much perivascular gliosis. The pulvinar shows a marked gliosis, consisting of a very heavy superficial layer, and numerous active cells throughout the tissue.

Caudate and Lenticular Nuclei.—Heavy superficial glia and considerable perivascular gliosis.

Hypothalamus.—More subependymal gliosis than over thalamus. Very numerous active glia cells about the floor of the third ventricle.

Geniculate Bodies.—Negative.

Summarizing the findings in the two series:

Dementia Præcox Cases.—In case I, gliosis is present in the thalamus, but is not limited to it, being found also in the subpial layer over the cerebrum.

In cases II and VIII the changes in the nerve cells of the thalamus are similar to those in the various cortices, and there is no gliosis in the thalamus or other parts of the central nervous system examined.

In case III the thalamic focal lesion is not an isolated one, as similar, though smaller, areas are present in the frontal region and cerebellum. This fact, however, would not necessarily detract from the importance of the thalamic lesion. The degree of superficial gliosis found in the thalamus is not duplicated in the other regions examined.

Case IV shows a superficial gliosis in the thalamus which is more advanced and more active than in other parts of the nervous system examined.

In case V no lesions were noted in the thalamus.

The thalamus of case VI is the site of an extensive and advanced gliosis which is sufficient to cause a macroscopic atrophy. The lesion is old and inactive. A gliosis is present to a lesser degree in adjacent structures, *i. e.,* the hypothalamus, internal capsule and basal ganglia. A subcortical gliosis is found in the postcentral, frontal and hippocampal areas, but does not at all approximate the degree found in the thalamus.

Case VII shows a thickening of the superficial glia and an active gliosis beneath the surface. A fibrillar gliosis is present in the posterior columns of the cord and a moderate gliosis on the floor of the fourth ventricle, but in neither of these locations has the gliosis the active character found in the thalamus.

Case IX showed slight thickening of the glia over the thalamus, and mild gliosis in the hippocampus, the central white matter of the cerebellum, and on the floor of the fourth ventricle.

In case X the thalamus, hypothalamus and basal ganglia showed a satellite reaction. The pulvinar was the site of a mild gliosis. The lower part of the right ventral nucleus also showed an increase of glia nuclei and fibrils, not sufficient, however, to distort the normal architecture. The gliosis in the thalamus is comparable in degree to that present in the central white matter of the cerebellum, the only other place in which gliosis was present.

Control Cases.—Cases 1 and 2 showed a slight gliosis over the pulvinar, but not elsewhere in the thalamus; an absence of gliosis in the cerebrum in both cases, but a peripheral gliosis in the medulla and cord of case 2.

In case 3 there was in places a perivascular lymphocytic infiltration, which was not found in the cortex. There was also a slight increase of peripheral and perivascular glia in the thalamus. Slight zonal gliosis in the cortex.

In case 4 the thalamus presented no noteworthy changes. Subependymal gliosis over the hippocampus and a focus of gliosis in the medulla.

In cases 5 and 7 the acute changes in the thalamus resemble those in the cortex; in case 5 there is some thickening of the glia over the thalamus, but none in case 7. No cortical gliosis in either case, but a gliosis of the cornu ammonis in case 7.

In case 6 there was a slight peripheral gliosis of the thalamus; none in the cortex.

The cases of cerebral arteriosclerosis and senile dementia (8, 9 and 11) showed advanced peripheral and perivascular gliosis in the thalamus with the presence of large fibril-forming cells in cases 8 and 11. In all these cases there was also a zonal gliosis over the cerebrum, and in addition in case 9 a perivascular, and in case 11 a sub-cortical gliosis. In the case of senile deterioration in manic-depressive (10) there was a mild perivascular lymphocytic infiltration in the thalamus; also a moderate perivascular and marked peripheral gliosis. The cerebrum showed a heavy zonal gliosis.

It is evident on review of these findings:

First. That the distinctive change in the thalamus is a gliosis. Degenerative changes in the nerve cells, satellitosis and perivascular accumulations, when present in the thalamus, were found also in the cortex, except in control cases 3 and 10, in which perivascular infiltration was confined to the thalamus. Some of the dementia præcox cases gave an impression of scarcity of cells as compared with the manic-depressive cases, but as this point could not be proved without accurate methods of enumeration to which the present sections were unsuited, it has not been emphasized. Changes in the hypothalamus were as a rule similar to those of the thalamus. The superficial glia was often rather heavier than over the thalamus, and active glia cells were frequently present beneath the floor of the ventricle, but no gliosis was found at any distance from the ventricular wall. No essential changes were found in the lateral or median geniculate bodies. In the lenticular and caudate nuclei the cellular findings were similar to those of the thalamus, but satellitosis was less marked.

The glia over the head of the caudate nucleus was thickened in the arteriosclerotic and senile cases, also in dementia præcox cases VI and X. Case VI, which showed extensive gliosis in the thalamus, had also a focus in the lenticular nucleus.

Second. That this thalamic gliosis occurs more frequently in dementia præcox patients than in those with other psychoses who die at about the same ages.

Third. That a marked gliosis may occur in the thalamus in dementia præcox cases at a period when there is little gliosis in other parts of the nervous system. In none of the cases was the gliosis strictly limited to thalamus, but in four of the six cases in which it was present there, it exceeded that found elsewhere.

The distinctive points about the thalamic gliosis in dementia præcox are the early age at which it appears and its occurrence in the absence of arteriosclerosis. The senile and arteriosclerotic cases showed marked peripheral and perivascular gliosis in the thalamus, as well as in other parts of the nervous system, but in them the thalamic gliosis was less active than in the dementia præcox cases, and had a more uniform distribution, lacking the focal character seen in several of the dementia præcox cases.

The areas most frequently involved are the median nuclei and the pulvinar.

Arranging the dementia præcox cases with reference to thalamic gliosis, age at death and duration of the psychosis (see Table I), it is found that the four cases showing no gliosis were all under 40 years, and that the psychosis was of short duration (not over one year). Of the four cases having a gliosis more marked and more active in the thalamus than elsewhere, three fall in the fifth decade, the third early in the sixth, and their psychoses were of three to five years' duration. Of two cases presenting a gliosis of roughly comparable degree both in the thalamus and in other parts of the nervous system, one was in the second half of the sixth decade and the disease was of long standing (19 years); the second was in the middle of the fifth decade and the disease was of six years' duration. The group presenting a gliosis either almost limited to the thalamus or more advanced there is therefore intermediate in duration, and, with the exception of case IV, intermediate also in age.

The interpretation of the lesion and its relation, if any, to the symptoms, are problematical. Correlations with the age of the patient and the duration of the disease suggest that it is dependent to some extent on these factors. The findings may mean simply that the gliotic process in general begins early in the thalamus as compared with other parts of the nervous system, and that it begins here earlier in dementia præcox than in other psychoses. The controls were not numerous enough (see Table II) to prove the first hypothesis, but the second is probable from the study of the present series.

As to the gravity of the lesion, not much weight can be attached to a mere thickening of the superficial glia mat, but its extension inward, accompanied by perivascular gliosis and fibril-forming cells, would appear to have some importance. The changes in III, IV, VI, VII and X are of the latter character. In addition, focal glioses are present in III, VI and X; those in III and X are situated in an area of the first importance, the ventral nucleus; that in VI occupies the larger part of the thalamus.

Study of the patients' histories adds nothing that, in the present state of our knowledge, can be pointed to as suggesting a correlation between the thalamic lesion and the clinical symptoms. Cases III, IV and X expressed somatic ideas, but, according to the histories, they were not prominent or persistent. In case VI, which showed the most marked and extensive lesion, no information on this point was elicited. In case VII cutaneous and visceral sensations form a conspicuous part of the clinical picture, but, in addition to the thalamic lesion, this patient presented posterior and lateral column gliosis.

CONCLUSIONS.

Some cases of dementia præcox in the fifth and sixth decades show a gliosis in the thalamus, which is more advanced and active than in other parts of the nervous system. This gliosis may be both peripheral and focal. Patients with other psychoses who died at about the same ages did not in the cases examined present a similar thalamic gliosis.

TABLE I.—DEMENTIA PRÆCOX CASES.

Group A.	No.	Age.	Form of dementia præcox.	Duration.	Thalamic gliosis.	Gliosis on other parts of nervous system.
No gliosis in thalamus	II	22	Catatonic hirntod.	8 days.	None.	None.
	V	34	Probably paranoid.	1 yr.	None.	None.
	VIII	17	Catatonic.	6 mos.	None.	None.
	IX	29	Paranoid.	1 yr.	Very slight thickening of peripheral glia.	Slight subedendymal gliosis in hippocampus and on floor of fourth ventricle. Slight gliosis in central white matter of cerebellum.
Group B. Gliosis more marked in thalamus than in other parts of nervous system.	III	41	Catatonic.	4 yrs.	Peripheral; focal atrophy with gliosis.	Small focus of gliosis in frontal cortex and cerebellum.
	IV	54	Catatonia (late).	5 yrs.	Peripheral; active gliosis in median nucleus.	Moderate subpial and subcortical of cerebrum.
	VI	44	Paranoid (paraphrenia).	3 yrs.	Peripheral; extensive focal.	Subcortical in post-central, frontal and hippocampal areas.
	X	40	Paranoid?	3 yrs. +	Fibrillar gliosis throughout pulvinar with perivascular and subependymal gliosis. Active glia cells and perivascular gliosis in median nuclei. Mild focal gliosis in ventral nucleus.	Moderate in central core of cerebellum.
Group C. Gliosis not limited to thalamus.	I	57	Paranoid.	19 yrs.	Peripheral and perivascular.	Moderate subpial gliosis of cerebrum.
	VII	45	Paranoid.	6 yrs.	Peripheral and perivascular; active gliosis, diffuse and focal, in median nucleus and pulvinar.	Posterior and lateral column gliosis.

TABLE II.

Group D.	No.	Age.	Psychosis.	Duration.	Thalamic gliosis.	Gliosis in other parts of nervous system.
Control cases.	1	41	Manic depressive.	5 yrs.	Slight peripheral over pulvinar.	None.
	2	54	Depression of involutional period.	1½ yrs.	Very slight peripheral over pulvinar.	Peripheral of medulla and cord.
	3	50	Depression of involutional period.	3 yrs.	Very slight peripheral and perivascular.	Slight zonal of cortex.
	4	40	Imbecile.	——	None.	Subependymal of hippocampus. Small perivascular focus in medulla.
	5	42	Chronic alcoholism, delirium tremens.	Alcoholism many years.	Very slight peripheral.	None.
	6	42	Epileptic dementia.	Many years.	Slight peripheral.	Slight peripheral of medulla and cord.
	7	34	Epilepsy. Status epilepticus.	Epilepsy 3 yrs.	None.	Marked in cornu ammonis.
Group E. Arteriosclerotic and senile	8	61	Cerebral arteriosclerosis.	9 yrs.	Very heavy peripheral. Considerable perivascular.	Zonal throughout cortex
	9	60	Cerebral arteriosclerosis. Cysts of softening.	3 yrs.	Very heavy peripheral and perivascular.	Moderate zonal and perivascular throughout cortex.
	10	78	Senile deterioration in manic depressive.	6 yrs. +	Marked peripheral. Moderate perivascular.	Heavy zonal throughout cortex.
	11	76	Senile dementia.	6 yrs.	Heavy peripheral and perivascular, most marked in pulvinar.	Zonal and cortical.

THE TREATMENT OF PARESIS AND TABES DORSALIS BY SALVARSANIZED SERUM.*

By HENRY A. COTTON, A. M., M. D.,
Medical Director, New Jersey State Hospital, Trenton, N. J.;
Consulting Neurologist, Mercer Hospital, Trenton, N. J.

Although general paralysis or paresis has been recognized as a mental disease for over 200 years, it is only within comparatively recent years that we have had definite knowledge of its etiology and pathology.

For many years it was considered purely a mental disease due to overwork, worry, etc., usually attacking those in the prime of life who were under great mental stress or were overworked. The relation of syphilis to paresis first noted by Krafft-Ebbing and other German writers was the subject of much dispute and until quite recently many writers, especially American ones, were inclined to dispute the rôle of syphilis in producing paresis. Upon a closer study of the histories of cases of paresis it was found that from 60 to 80 per cent had had a previous infection of syphilis, but this fact failed to convince the opponents.

The advent of the Wassermann reaction as a means of detecting luetic infection raised the percentage still higher, and many cases in which no history of syphilis could be obtained were found to react positively to this test.

The fact that the Wassermann reaction was positive in a large percentage of cases of paresis did not clear up all our etiologic difficulties, because of the fact that long periods of time elapsed in many cases between the infection and the onset of the paretic symptoms, during which time no symptoms whatever of the luetic process were apparent. Speculation upon the nature of the process during the intervening period was fruitless, as there was apparently no adequate explanation for this unusual phenomenon.

From the fact that the Wassermann reaction was present in the blood and spinal fluid of paretics, Plaut argued that the spirochete pallada were present somewhere in the body, either in certain organs or in the central nervous system, and perhaps in both. Alzheimer and other histo-pathologists, on the other hand, maintained that the spirochete were absent, mainly from the negative fact that after diligent search they had not been found. This controversy, however, was finally ended by the work of Moore and Noguchi.[1]

---

* Read in abstract at the seventieth annual meeting of the American Medico-Psychological Association, Baltimore, Md., May 26-29, 1914, and further enlarged.

The importance of this work cannot be overestimated, for it not only settled finally the question of the etiology of paresis, but gave those interested in the care of these cases some hope of a rational method of treatment.

The problem divested of its previous mystifying elements was now apparently quite simple. We were dealing with the infection of a known organism, which organism was existent in the tissues of the brain and cord, and the next step was to devise some method of eradicating the organism before irreparable damage had been done to the cortex.

Swift and Ellis[2] had published a method of treating syphilis of the central nervous system by means of salvarsan nearly a year before Moore and Noguchi had demonstrated the organism in the cortex. But from the fact that our knowledge of the pathogenesis of the process was somewhat obscure, the method outlined by Swift and Ellis did not at first assume the importance that it did later, after the work of Noguchi and Moore. The repeated failure of anti-syphilitic therapeusis in paresis resulted in a certain amount of pessimism upon the question of treatment in general, and even to-day, in spite of the results thus far accomplished, many are unable to conceive of any beneficial results from any form of treatment.

The failure of anti-syphilitic remedies (mercury and iodide of potash), when administered in the usual manner, can be ascribed largely to the impermeability of the choroid plexus, which has been shown by Goldman and others to act as a filter, this preventing the passage of toxic and foreign substance into the cerebro-spinal fluid. Also it is possible that the walls of the cerebral capillaries are so constructed that they prevent the passage of toxic or poisonous substance into the cerebral tissue.

---

[1] A demonstration of treponema pallidum in the brain in cases of general paralysis (Journal of Experimental Medicine, Vol. XVII, No. 2, 1913), in which they were able to demonstrate this organism in the brains of 12 cases of paresis, out of 70 cases examined.

[2] The direct treatment of syphilitic diseases of the central nervous systems (New York Medical Journal, July, 1912. XCVI-53).

But whether the failure of mercury or iodides to reach the spirochete in the cortex is due to the impermeability of the choroid plexus or to its refusal to secrete these substances and also salvarsan, or to the peculiar functions of capillaries, the fact remains that in the large majority of cases no results were obtained by such therapy, and it was practically abandoned. It is possible that in very early cases where large doses of mercury and iodides were administered, this barrier may have been overcome and some cases, like those reported by Dana, may have been permanently benefited.

The work of Flexner, in epidemic cerebral spinal meningitis, pointed definitely to the method to be employed in attacking infections of the central nervous system or its various elements. The serum in meningitis must be given intra-spinally to be effective. Hence, to be effective, remedial agencies in paresis must be given intra-spinally, and hence the valuable contribution of Swift and Ellis in treating tabes or paresis by means of intra-spinous injections.

The psychiatric world owes a tremendous debt of gratitude to these two men for their pioneer work in developing a satisfactory treatment for these two diseases, and I take this opportunity to express my appreciation for their valuable assistance extended willingly and courteously at all times, and can only regret that circumstances would not allow them to apply their treatment to paresis. To them we must give unstinted credit, for without their work and assistance it would have been a long time before this chapter in the history of psychiatry could have been written. The success of their method has been amply demonstrated in the Government Hospital at Washington; Sheppard and Pratt Hospital, Baltimore; Bloomingdale, and others. And although it has been criticised to some extent, still enough work has been done to prove that at present salvarsanized serum offers the best means of attacking the spirochete and thus arresting the disease process.

The success of the treatment will depend largely upon the stage of the process in which treatment is instituted. From our knowledge of the anatomical process, it would be folly to expect to restore the cortex after it has been destroyed as we see it at autopsy. But it would be unfair to condemn a method of treatment because it did not cure in all cases; as in tuberculosis and many other diseases, the successful treatment depends upon a diagnosis of that disease in its early stages, and in that respect paresis is no exception. In fact, the process advances so rapidly in some cases that the patient may become so demented in six months as to be beyond hope of benefit. But the length of time does not always indicate the stage of the process, as we often find mild cases of two or three years' duration which respond successfully to treatment.

Diagnosis.

As the success of the treatment depends upon an early diagnosis of the disease, we will discuss in some detail the methods of diagnosis available, especially to the general practitioner.

It is no reflection upon these physicians that they fail to diagnose these cases, and in the past have not urged them to go to state hospitals or to undergo treatment. But now that it is so essential that these cases be treated early it behooves the physician in general practice to become familiar with the diagnosis of paresis, and to understand fully the necessity for early treatment. In analyzing the 127 cases of paresis admitted to this hospital in the last eight years, we find that the average duration of the mental symptoms before commitment was 18 months and the time varied from two to six years.

In 65 per cent of cases the duration was one year or more.

In 39 per cent of cases the duration was two years or more.

In 38 per cent of cases the duration was six months or less.

And it is needless to say that in very few of the cases was the disease recognized. The diagnosis of paresis is a very simple matter, in fact, in the majority of cases there should be no difficulty in at least suspecting the diagnosis. The use of the electric flash light will often tell the story. Dilated or contracted pupils with sluggish reaction to light, or often no reaction at all. The knee jerks, when absent as they are in 24 per cent of the cases, will also make one suspicious that the nervous patient is either a paretic or tabetic or a tabo-paretic, and further examination is imperative. The other clinical symptoms are not so reliable, especially in the early cases, but loss of memory, indifference to work, change in disposition, extravagant ideas or lack of judgment, accompanied by stiff or sluggish pupils, absent or exaggerated knee jerks, tremors, speech defect, unsteady gait, will establish the diagnosis in a majority of cases.

However, there are a small number of cases in which these physical and mental signs will not be clear enough to make a diagnosis possible. We then have an accurate means of diagnosis in lumbar puncture. Even in institutions were the diagnosis should offer no difficulties, a lumbar puncture will correct a tremendous lot of error, especially in recent cases.

The examination of the spinal fluid is especially important, as in all other psychoses the findings are practically negative.

The methods of diagnosis in order of their importance are as follows:

(1) Colloidal gold reaction of Lange.

(2) Globulin test by Noguchi, butyric acid method.

(3) Increase in number of lymphocytes in the fluid and the presence of plasma cells.

(4) Wassermann reaction in the spinal fluid.

(5) Wassermann reaction in the blood.

In practically every case one of these reactions will be found to be present. Until recently the cell count and globulin test has been the most reliable diagnostic findings, either one or the other always being present, and in most cases both will be positive. Recently, however, the gold chloride test for globulin by Lange's method has been emphasized by Meyer[3] as the most constant test in paresis. This reaction is really based upon the globulin content and in a rather difficult reaction, especially for routine examinations.

Dr. E. Corson White, of Philadelphia, very kindly made the colloidal gold tests in 16 cases of our series. All but one of the cases are still under treatment, in which the other serological reactions were negative. In the one case (1) which has not been treated for over nine months, the reaction was negative. In the majority of the other cases the reaction was much reduced, but was still positive. In these cases the strength of the reaction was highest in the first four tubes, and then rapidly fell in strength in the subsequent tubes. In only one case was the highest reaction seen in the first five tubes, and that was a case in which the spinal fluid Wassermann is still strongly 4 +. The others showed considerable variation in the reaction. Further examination of these cases is indicated before we can arrive at any definite conclusions regarding the effect of treatment upon the colloidal gold test.

---

[3] The Differential Diagnosis of General Paralysis, Am. Jour. Ins., July, 1914.

The globulin content has been the most constant finding in our cases, and has only been found to be negative in two instances in over 200 cases examined.

The exact significance of the presence of globulin or albumin in the spinal fluid has not as yet been satisfactorily explained. It has been considered an index of the destruction of the protein elements in the cortex, and is always found where the active process is going on. It usually follows the increase in the lymphocytes in the spinal fluid, but in many cases the cell count may be high and the globulin content low, and *vice versa.* In some cases of paresis, and especially tabes, in which the disease process seems to be stationary (and the patients live longer than the average, two and one-fourth years), the globulin content apparently becomes weak and the cell count diminished. In these cases, when the Wassermann reaction in the blood and spinal fluid are also negative, it would seem that the active process had ceased; that the organisms were no longer active or may have been spontaneously destroyed. The fact that Moore and Noguchi were only able to demonstrate the organism in 12 out of 70 brains would also lend force to the view that in many cases of paresis, after several years' duration, the spirochete become extinct, perhaps through the formation of specific anti-bodies in the blood.

The cell count is fairly reliable as a means of diagnosis, but in a few cases it may be normal or less than five cells per cc.

There is no doubt that the cell count undergoes considerable variation and at times may be negative. But our experience in testing a number of cases at different periods does not agree with the experience of Mitchell, Darling and Newcomb,[4] who found that in the majority of cases there was a definite decrease in the cell count after repeated lumbar punctures. We only found this tendency to a decrease in cells and globulin in cases which had been in the hospital for three or four years and in which the paretic process seemed to be quiescent.

---

[4] Observation upon the spinal fluid cell counts in untreated cases of cerebro spinal syphilis. Jour. Nervous and Mental Diseases, Vol. 41, No. 11, Nov., 1914.

By studying our control case (Chart I) it will be seen that there were variations in the cell count and globulin, but in no instance did either become negative. In a number of cases of paresis in the acute stage the cell count showed a tendency to increase rather than decrease after a series of punctures. With the cell count low an error in diagnosis can result, unless the Alzheimer method of differential counting is used. The presence of plasma cells will make the diagnosis positive, even when the cell count is low.

The Wassermann reaction in the blood and spinal fluid cannot be utilized for diagnostic purposes as the reaction was found by Hammond[5] to be absent in the blood in 13 per cent of the cases and absent in the spinal fluid in 20 per cent of the cases. The Wassermann reactions are to be utilized, however, as a confirmation of the diagnosis, and when strongly positive at the onset, as an indication for continued treatment if these reactions remain positive.

With the methods available there can be no excuse for errors in clinical diagnosis, and in all cases suspected it should be the duty of the physician to have such tests made as outlined above in order to determine the necessity for immediate treatment.

Source, Circulation and Function of the Spinal Fluid.

Since the introduction of the intraspinous treatment with salvarsanized serum for paresis and tabes, the question of the circulation of the spinal fluid has received considerable attention. Many doubted the efficacy of the treatment, because they claimed that the serums introduced in the lumbar region of the spinal canal failed to reach the cortex.

---

[5] Statistical Studies in Syphilis with the Wassermann Reaction, with Remarks on General Paralysis. American Journal of Insanity, Vol. LXX, No. 1, July, 1913.

The recent work of Weed[6] is timely and has succeeded in clearing up some of the mooted questions regarding the source, etc., of the spinal fluid.

The recent work of Frazier[7] is also in accord with that of Weed.

It would occupy too much space to discuss in detail the experimental work of Weed. He has established some definite facts which are extremely important to those engaged in intraspinous therapy.

The spinal fluid is derived from two sources. First, from the secretion of the choroid plexuses in the lateral ventricles. Second, from the capillaries in the cortex, the serum filling the pericapillary and perineuronal spaces and flowing to the subarachnoid spaces. There can be no doubt but that the constituents of the fluid from these two sources are entirely different. The fluid exuding from the capillaries plays an important part in the metabolism of the nervous tissues, yielding nourishment and carrying away the waste products to the subarachnoid spaces. The flow from the the pericapillary and perineuronal spaces seems to be outward toward the subarachnoid spaces. By injecting a solution of ferrocyanide into the spinal subdural spaces Weed found that, under moderate pressure (50 mm. Hg.) traces of the solution could be found in perineuronal and perivascular spaces, and in some cases a fine diffuse collection of granules of Prussian blue around the nerve cells. He does not believe that there is any absorption of the spinal fluid by the capillaries, as the pressure of the blood in the capillaries is higher than that of the spinal fluid. Where the solutions were injected under high pressure (100 to 150 mm. Hg.) the passage of the fluid into the capillaries was obtained in a few cases. Tillney and Woolsey, in 1910, by a series of important studies in vital staining, introduced a solution of trypan blue, subcutaneously, intra-arterially and intra-spinally. By the first two methods they found that the skin, thoracic and abdominal organs were stained readily; the central nervous system, however, remained free from the stain. When given intravenously the stain reached the dura mater and pia, but did not penetrate the cortex. Even after using twice the quantity of solution and the concentration three times as great as used in the other two methods, there was no evidence that the dye had entered the cortex. After the intra-spinal injection, however, only one-tenth the strength of the solution, the meninges were not only found to be deeply stained, but the dye had penetrated deeply into the nervous tissue, even penetrating the walls of the capillaries, reaching the endothelium of the latter. These experiments with the work of Weed show conclusively that the cortex can be reached by means of intra-spinous injections.

---

[6] Studies on the Cerebro Spinal fluid. Journal Medical Research, Vol. XXXI, No. 3, September, 1914.

[7] The Cerebro-Spinal Fluid in Health and Disease. Journal A. M. A., Vol. LXIV, No. 14, April 3, 1915.

The course of the fluid was also studied by Weed. He concluded that the course of the fluid was toward the medulla, both from the ventricles and spinal canal.

At the present time no one would doubt that the most efficient means of treating syphilis of the central nervous system is through the medium of the spinal fluid. As remedial agencies fail to reach the cortex by the usual methods, the spinal fluid offers the greatest hope for successful treatment. It may be disputed whether injections in the spinal cord in the lumbar region are as efficient as subdural intra-cranial injections. The intra-cranial method offers an advantage, from the fact that the medicinal serum reaches the cortex in a more concentrated solution than the serum introduced into the spinal canal. In the latter case the serum becomes somewhat diluted by the spinal fluid and a considerable amount is absorbed by the cord and nerve sheaths in its passage through the cortex.

But the experiments cited above disprove the theory that there is any mechanical hindrance to the passage of serum from the spinal canal to the cortex. In one of our cases which died after treatment, salvarsan was detected in the ventricles at autopsy on the day following intra-spinous injection.

Therefore the intra-cranial route may become the one of selection for the reasons stated above. It is also possible that this method may not require the administration of as many treatments as the intra-spinal one. But, in our experience, cases in which the intra-spinous treatment was unsuccessful failed to respond to the intra-cranial method.

The circulation of the fluid in the spinal canal is apparently toward the cortex, and finally the fluid escapes into the circulation by a process of filtration through the arachnoidal villi. There is a minor return of cerebro-spinal fluid through accessory drainage of the fluid into the lymphatic system, but it is unimportant.

He also concluded that the absorption from the cranial arachnoid space was much more rapid and much greater in amount than from the spinal portion. It was also determined that fluids pass readily from the subdural spaces to the subpial spaces, and thence to the cortex but that there was no passage of fluid from the subarachnoid to the subdural spaces.

Spontaneous Remissions in Paresis Without Treatment.

Much has been said about the percentage of cases of paresis which have spontaneous remissions without treatment. It is true that such remissions do occur, but prior to the use of the lumbar puncture as a means of diagnosis, statistics of such remissions have but little value, as a diagnosis made upon the mental or physical symptoms also will often be erroneous. Southard puts the error at 15 per cent, and it is probably larger. In order to throw some light upon the question the author analyzed all the cases of paresis admitted to the State Hospital at Trenton for the last 7 years. The total number of cases studied was 127, where the diagnosis was confirmed by lumbar puncture. Out of that number of admissions 14 cases left the hospital during a period of 7 years. Out of that number 7 cases were not improved and were taken out against advice; 2 were in a dying condition and died later; 2 were deported and nothing further heard from them, and 1 transferred to another hospital. Two cases have not improved since leaving the hospital, but are cared for at home. This leaves 7 out of 127 cases with true remissions, at the most 5.5 per cent. One of these cases (case 5) has been returned after a period of 5 years, and in 1 case no lumbar puncture was made and hence the diagnosis is uncertain. That leaves 5 of 127 cases which can consistently be called paresis, which have had definite spontaneous remissions varying in time from 1½ to 3 years, or 3.9 per cent of the total number of cases admitted.

Below is given a short abstract of each case and a table showing the prominent factors. We should add to this group a case which has never left the hospital, but has had a remission of the physical symptoms. Mentally he is much demented and the biological reactions except for a positive blood Wassermann are negative. It would seem then that a very small percentage of cases of paresis (about 4 per cent) do show a spontaneous arrest of symptoms, sometime for a considerable length of time. But such spontaneous remissions, when compared with the remissions obtained by treatment with salvarsanized serum, are very small. In our series, out of 66 cases treated, which includes all cases, many of which had been in the hospital for several years and were practically bedridden, and which also includes a considerable number in which treatment has just begun, the percentage of remissions, if we take the 10 cases which are living outside of the hospital or which have never had to come to the hospital as 10, is 15 per cent. But this percentage is not accurate, because in many of these cases there was no chance of improvement, but they were treated so that the method could be tested in all stages of the disease. But if we take 27 of the cases which were thoroughly treated during the last 2 years, the majority of which gave at least some hope of improvement and 10 of which cases showed very definite remissions, the percentage of remissions as the result of treatment is 35 per cent, compared with 4 per cent without treatment. And this percentage covers only 2 years, while the percentage of spontaneous remissions (4 per cent) extends over a period of 7 years, or 5 cases in 7 years, an average of less than 1 case a year against 10 cases in 2 years, or an average of 5 cases a year.

Following is a brief abstract of the cases showing spontaneous remissions:

Case 1.—H. B. Was committed first to hospital in 1905 for alcoholism and remained three months, when he was discharged. Recovered. He worked up to a few weeks before admission in 1913. Again began to drink heavily and was committed for alcoholism. Because of suspicious signs, speech defect, unequal pupils, tremors, etc., a lumbar puncture was made and a cell count of 29 with a positive globulin and negative Wassermann reaction in the blood. He cleared up rapidly, and in three months had apparently recovered, and was discharged. He resumed his employment and has worked steadily since then without any apparent symptoms of paresis. Remission has lasted two and one-half years.

Case 2.—W. O. Prodromal symptoms for two years. Heavy drinker, financial losses, inefficient in business and loss of memory. Remained in hospital for only one month, at which time mental symptoms were not marked. Memory was good; no deterioration established, but no insight. Probably symptoms were due mostly to alcohol. Physically he showed ptosis of left upper eyelid, pupils unequal and irregular, sluggish reaction to light, knee jerks and Achilles reflex absent, ataxic gait, Romberg, fine tremors and speech and writing defects. He improved very much and was taken out by wife, who wished to place him in a private institution. Instead she took him home and in three months he was working as bartender in his saloon, but not drinking. Two years later field worker visited him and found him well mentally, but in poor physical condition, feet swelling, etc. The case was one of locomotor ataxia with mental symptoms of paresis, and alcoholism, and was an atypical case of paresis.

The third case was a typical expansive paretic with sudden onset, only two months, with definite physical signs, but not pronounced. The mental symptoms were those of a hypomanic condition with expansive ideas, playfulness and restlessness, but no demonstrable deterioration. He improved slowly and gained in weight, and was taken from the hospital by wife after a month, and since then he has been supporting family, and three years later a letter from his physician states that he is quite normal and shows no mental or physical signs of paresis. This was a fairly frank case of paresis without deterioration, and with cell count of 17 per cc. and a strong plus globulin and positive Wassermann reaction in blood and spinal fluid, the diagnosis cannot be questioned.

The fourth case was a paretic with fairly well-marked mental and physical symptoms and with a cell count of 298 per cc. and a strong plus globulin and positive Wassermann reaction in the blood. He improved gradually and left the hospital after ten months, and has been working in a piano factory and supporting his family.

The fifth case was a paretic with a history of slowly progressing psychosis of eight years' duration. Gradually became inefficient and was placed in less responsible positions until he had to give up work and was later sent to hospital. When admitted had unequal, sluggish pupils, some speech defect, exaggerated knee jerks and swaying in Romberg. Mentally, he was dull and stupid, but orientation and memory good. No evidence of dementia; school knowledge and calculating ability good, but latter very slowly performed. Poor insight and judgment. Lumbar puncture confirmed the diagnosis, as there were 68 cells per cc. and positive globulin; but both blood and spinal fluid Wassermann were negative. He showed considerable improvement, and after eight months in hospital was removed by wife. He obtained employment of a subordinate character which did not require much mental effort, and made $18 a week. His wife left him to earn her living. He showed no special symptoms until seven weeks before his second admission to the hospital; then had a weak and dizzy spell, became partially blind. He recovered in two weeks and went out West, but has not been so well since then. Returned to hospital after being out nearly four years. The physical signs were about the same as when first admitted, but weaker and had aged very much. Very unsteady on his feet. Mentally he showed evidence of defective memory for recent events and retention poor. Well oriented. Grasp upon school knowledge and calculation fair. The cell count was a little higher than at first admission and globulin was stronger positive than before, but blood and spinal fluid Wassermann negative. The case had a definite remission, but more of stationary type, and is now under treatment.

Below is a table showing in detail the features of cases of spontaneous remission:

Name.	Duration.	In hospital.	Remission.	Physical signs.	Mental symptoms.	Cell count.	Globulin.	W. B.	W. F.	Note.
1 H. B.	2 yrs.	3 mos.	2½ yrs.	Present.	Alcoholism.	29	±	–	...	In hospital 8 yrs. before for alcohol.
2 W.O.	2 yrs.	1 mo.	2 yrs.	Marked tabetic.	Slight.	33	+	+	4+	Still home.
3 A. D.	2 mos.	7 mos.	3 yrs.	Moderate.	Expansive typical.	17	+	+	+	Still home.
4 E. K.	6 mos.	10 mos.	1½ yrs.	Marked.	Marked.	298	+	..	...	Still home. Working.
5 H. G.	8 yrs.	8 mos.	5 yrs.	Marked.	Moderate.	68	+	–	–	Returned.

DESCRIPTION OF CHARTS.

In order to get a comprehensive idea of each case as a whole we have adopted a method of charting the biological and the clinical data with the weight charts, so that one can see at a glance the complete case. The upper left hand division is devoted to the cell count, globulin and spinal fluid pressure. The upper right hand division represents the Wassermann reactions in the blood and spinal fluid. The lower left hand division represents the clinical and physical signs, and the lower right hand division the weight. In the division representing the cell count, globulin and spinal fluid pressure, in the three columns at the left in the order given, will be found the values for the curves, indicated by figures for the cell count per cc. It was impossible to show the curves in their true proportions, as it would make a too unwieldy chart, so after about 20 the figures skip sometimes 5 or 10. Consequently, the changes shown below 20 are much out of proportion to the changes above that figure. But the actual number of cells per cc. matters little, as the main point to consider is whether the cell count is positive or negative, and the changes in the lower numbers are more important to us than changes in the larger numbers. The cell count is represented by a full line.

Next in the second column we have the values for the globulin content representing the strength of the reaction from – to 4 +, given here with the dots around the plus sign to save space. This curve is represented by a heavy dotted line.

The spinal fluid pressure values are represented by figures usually ranging from 100 to 500 and the curve is shown as a fine dotted line. In most cases the pressure curve is above the other curves, but in some cases it is found among the other two curves, and at first glance they seem confusing. The dates of treatment are given above this division and the number of weeks of treatment also shown. Below the dates indicated by a cross (X) are shown the treatments, and when no initials are below, the regular Swift-Ellis treatment is meant. It is often indicated as S.-E. The Ogilvie modification is indicated by O. M., the intercranial punctures by I. C., and the bichloride treatment of Brynes by B. Intravenous injection is indicated by I. V., and in some cases I. S. represents the Swift-Ellis treatment. In the division representing the Wassermann reactions, the values are shown from – to 4 +, with the dots about the plus sign as in the globulin column. The blood Wassermann is represented by a full line and the spinal fluid reactions by the dotted line. The dates above represent the days the test was made.

In the clinical and physical charts it is intended to show diagramatically the abnormal and normal symptoms. Thus a pronounced defect is shown by three crosses (XXX), a less marked defect by two crosses (XX), and a slight defect by one cross (X). When no defect exists the cipher (O) is used. It is intended to show the clinical symptoms on days approximating those of the upper chart, so that one can correlate the clinical changes with the spinal fluid findings. The weight chart needs no detailed explanation.

It is hoped that these charts will give one the view of the case intended and will not prove too confusing. While not an ideal method of portraying the changes in the various fields, at the same time it is the best that the writer could devise.

Variability and Fluctuation of Biological Reactions.

Control Case.

The changes noted in the biological reactions in our cases treated by salvarsanized serum have been criticized, and the claim has been voiced that these changes, *i. e.,* lowering of cell count, changes in globulin content from positive to negative, and also similar changes in the Wassermann reactions, are only what occur in all cases of paresis whether treated or not. And the recent work of Mitchell would tend to substantiate that claim. We do not dispute the fact that there are fluctuations in these reactions over a definite period of time, or that the reactions may be stronger and more pronounced during the acute stages of the disease. And we will admit that in certain cases, a very small number it is true, the reactions may become negative, especially the cell count and globulin content. But our experience in making repeated punctures in a number of cases over a long period of time would tend to show that the fluctuations were within much narrower limits than claimed by Mitchell. Thus in cases 1 and 2, where the punctures were taken some months apart before treatment was instituted, the cell count and globulin content were practically the same.

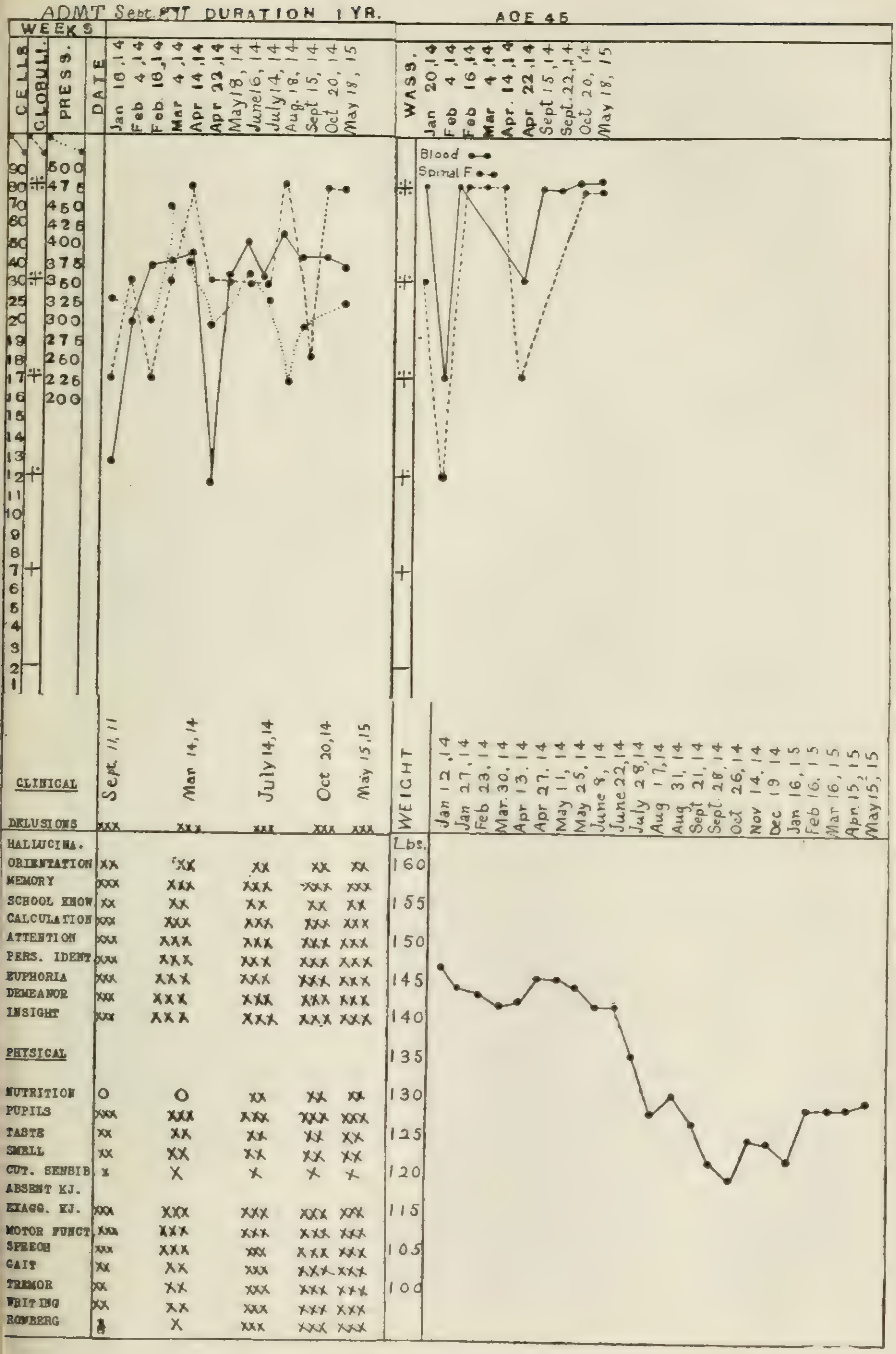
In case J. F. (control) (Chart I) lumbar punctures were made every two weeks or once a month for a period of ten months without any treatment being given. The cell count fluctuated between a maximum of 60 and a minimum of 12, only once, however, reaching as low as the minimum, but in ten punctures the cell count varied between 30 and 60 and at no time did it become normal. The same may be said as to the strength of the globulin reaction. There was a tendency for the count to rise from 2 + to 4 +, and the same can be said for the Wassermann reaction (see chart). One can easily see that the tendency of the reactions is to become stronger as the patient fails as a result of the disease. And in the cases we treated which died during treatment the reactions showed a tendency to become stronger. In analyzing a number of cases of paresis in which lumbar puncture was made, not every two weeks, but several weeks covering various periods of time, the tendency of the reactions to increase in intensity where the case was failing rapidly or gradually was very pronounced. In certain cases which remained stationary the reactions showed a tendency to diminish. It is also true that often several punctures must be made if a case presents the clinical features of paresis and the first examination of the spinal fluid is found to be negative. But often, if the cell count is apparently normal, the globulin content in the majority of cases is positive. The Wassermann reactions are usually positive, but in a great number of cases, about 15 per cent, these reactions will be persistently negative, so that it is useless to determine the diagnosis by the Wassermann reactions alone. The changes in the biological reactions in our treated cases are apparently due to the treatment and not to any spontaneous variation of these reactions unaffected by treatment. This fact is especially emphasized in our cases with a tendency to a persistent 4 + globulin or 4 + spinal fluid Wassermann, which, after many treatments, often as many as 20, begin to show a break and finally become negative.

The Wassermann reactions were performed after the original technique with the exception of the antigen. The latter consisted of the alcoholic extract of syphilitic fetal liver and the cholesterinized alcoholic extracts of human and beef hearts. These antigens were used concomitantly with the same sera when these gave reactions of doubtful nature. As already shown by Swift and Ellis, the human heart cholesterinized antigen proved somewhat more sensitive than the others and was taken as the standard.

Full quantities of serum and reagents were employed and the charted results recorded after the method of Citron. When both .2 and .1 cc. serum tubes showed complete inhibition it was recorded as + + + +, when the .1 cc. serum tube showed partial hemolysis, as + + +, the .2 tube alone completely inhibited as + +, and when partially hemolysed as +. The quantity of spinal fluid tested in the Wassermann reaction was .8 cc. The globulin content of the fluid was estimated by the Noguchi and Nonne methods and the cell counts made with the Fuchs-Rosenthal counting chamber.

Control Case.—J. F. (see Chart I.) Typical expansive paretic. One year's duration before admission. Bi-weekly lumbar punctures three years later. Gradually deteriorating, both mentally and physically. Variations in biological reactions, but now becoming normal. No improvement in mental condition.

This patient had been in the hospital about three years and onset of his trouble was probably one year prior to admission, at which time he presented the following physical signs: unequal pupils, sluggish to light; exaggerated knee jerks; typical speech defects; writing defective; tremors of fingers and tongue. Some incoordination, but mentally when admitted was somewhat confused, disoriented for time, place and persons, and had pronounced memory defects. He was very expansive and had a general feeling of well-being. Mental grasp poor and apparently moderately deteriorated. Untidy and indolent in habits, talking to himself most of the time.



Control Case. Chart i. J. Fr. G. P.

Progress.—He continued in about the same condition for three years, gradually becoming more demented, but still retaining his expansive ideas. At this time he was selected for a control case, in order to show the effects of repeated lumbar punctures upon clinical symptoms as well as upon the biological reactions. Bi-weekly and monthly punctures were made, and blood and spinal fluid Wassermann tested. The punctures had no effect whatever upon his mental or physical condition. In fact, his deterioration went slowly on and his physical condition became materially worse. His weight dropped from 147 to 122 pounds, and he became much weaker. In other words, the disease process was not influenced at all by the punctures. The biological reactions also were very little, if at all, affected by the punctures; the cell count gradually rose from 13 to 50 after five punctures, then dropped to 12 and rose again in a month to 60. The globulin reaction became stronger, going from + to ++++, and with some variations remaining at 4+.

The blood and spinal fluid Wassermann showed a tendency toward parallel fluctuations, but persistently showed a tendency to remain at 4+. At present, after a year and a half, the last puncture taken after an interval of eight months, the reactions are stronger than when puncture was begun. Of course, no one expected such an advanced case to improve from punctures, but this case is reported to show that no influence at all was exerted upon the disease process by lumbar puncture. Similar studies made upon new cases show a tendency toward an increase in the cell count and globulin content after repeated punctures. In old cases, who have been in the hospital for three or four years or longer, one finds a tendency toward the reaction becoming negative.

Methods of Treatment.

We have at the present time several methods which have been developed as a result of the pioneer work of Swift-Ellis at the Rockefeller Institute. In the first year of our work we used the S.-E. treatment exclusively, and are inclined to think as good a result can be obtained with this method as with any other, with the exception, however, that, because of the fact that intravenous injections must be given with this method, the interval between treatments is perhaps too long. The methods of administering salvarsanized serum which have been reported to date are:

1. Original Swift-Ellis method.
2. Ogilvie modification.
3. Cerebral puncture or intracranial method by Wardner.
4. Bichloride of mercury serum by Brynes.

5. Cotton methods.
    a. Administering Ogilvie serum by cerebral and intraventricular puncture.
    b. Administering bichloride of mercury serum by intracranial and intraventricular puncture.

6. Intraventricular administration of the serum, Hammond and Sharp.

METHODS IN DETAIL.

1. *Swift-Ellis Method* (designated in charts and text as S.-E.).—This method was devised as a treatment for locomotor ataxia and is to be considered the fundamental method of using salvarsanized serum or treating the syphilis of central nervous system. Unfortunately Swift-Ellis were unable to treat cases of paresis at Rockefeller Institute Hospital, so their method had to be used and adapted by others for this work, although it was from their suggestion that such work was instituted. This method is now so well known it is hardly necessary to go into detail as to its administration; however, we will outline its salient features.

The patient is first given an intravenous injection of salvarsan or neosalvarsan. After an hour has elapsed the blood is withdrawn and according to Swift-Ellis the blood at that time contains a maximum amount of salvarsan and after this time the amount rapidly decreases. The blood is withdrawn in a sterile cylinder with ground glass stopper and every precaution is taken to keep it sterile and uncontaminated. We use Macrae needles fitted tightly into the cylinders and in order to supply the vacuum to the cylinder to accelerate the flow of blood we attach a tube connected with an ordinary aspirating vacuum bottle. This is much more convenient and much easier than the sucking process usually employed with the Macrae needles. One can use a large needle and allow the blood to flow into a tube without the aid of a vacuum, but our method is to be preferred for various reasons. The blood is usually allowed to stand over night, separating the clot from the side of the cylinder by a sterile rod to allow it to contract more readily and to obtain more serum. This serum can be used, however, after allowing the blood to stand for 5 or 6 hours, instead of 24. The supernatant serum is then pipetted off and then thoroughly centrifuged at 3000 revolutions for a period of one-half hour in order to thoroughly remove any blood cells. The serum is then inactivated for one-half hour at a temperature of 56° C., cooled and then normal salt solution is added and this must be made up from double distilled sterile water freshly prepared. The amount of salt solution added to the serum can be varied according to experience. Originally S.-E. used 10 cc. of the serum and 20 cc. of normal salt solution. We have frequently used 20 cc. of fluid and 10 cc. of normal salt solution, or 15 cc. of each, and serum is often used alone without addition of any salt solution. We found that the best results were obtained with a mixture of 15 cc. each, although occasionally we have given as high as 30 cc. each, but the reaction from the latter is apt to be severe. The serum after being treated as before is now ready for use intraspinally. It can be used on the same day that the intravenous injection is given, but we prefer to allow the blood to stand 24 hours and administer the serum intraspinally on the next day. The patient is prepared for lumbar puncture, which is made either lying down on the side or sitting upright on a stool. We have invariably used the latter position without any untoward results. Lumbar puncture is then made in the usual manner with a Quincke needle, the end of which is made to receive the adapter connected with a rubber tube to the pressure gauge and another tube connected with the Luer syringe. After the puncture is made the pressure is measured by means of the millimeter tube and then fluid is allowed to run out through the end of the pressure tube. The amount of fluid taken off varies considerably in different patients. In some patients we have removed as much as 70 cc. of fluid without any noticeable effect on the patient and in all cases we remove as much as possible, *i. e.,* until the patient begins to complain of severe unpleasant symptoms in the head. The serum, which in the meantime has been warmed to body temperature, is then put in the Luer syringe and a little is allowed to flow out until all air escapes and then the adapter is fitted to the lumbar puncture needle and the serum allowed to flow in by gravity. After about one-half of it has flowed in, the piston of the Luer syringe is then used to force the remainder of the serum in the needle. The patient is then allowed to lie down for an hour or so, and frequently it is necessary for the patient to remain in a recumbent position for 24 hours or longer. Some of our patients, however, do not lie down at all after the injection, but go about as usual. Care of the patients after intraspinous injection has to be according to individual needs. Some patients do not mind it at all, having no reaction, while with others it is much better for them to remain quiet and in bed. In no case, however, is a patient put to bed and his feet elevated, as that is liable to bring on severe headaches and vomiting. We have not given this method oftener than once in ten days, but it is possible to give it more frequently. Often our patients react more strongly to the intravenous injection than they do to the intraspinous. The only criticism of this method is that one is unable to give it frequently enough, owing to the danger of the intravenous injection. No doubt some patients could stand the intravenous injection once every three or four days, but we must admit that it is rather dangerous procedure and may cause the death of patients who are unable to stand the treatment so frequently.

2. *Ogilvie Modification*[8] (designated in chart and text as O. M.).—This method was devised by Hanson V. Ogilvie, who worked with Swift-Ellis at Rockefeller Institute during the time they were experimenting with their method. The essential difference in the two methods is that the salvarsan is mixed with the blood serum outside of the body instead of giving the salvarsan intraspinally. The method in detail is as follows:

Forty or 50 cc. of blood is withdrawn from the median cephalic vein by the same method as used in withdrawing blood in the S.-E. treatment. This blood is then allowed to stand three or four hours or until sufficient serum has collected. The supernatant fluid is then pipetted and centrifuged thoroughly, the same as in the first method. Then to this is added ¼ mg. of salvarsan, which has been dissolved in sterile distilled water and neutralized in the usual way. This is mixed thoroughly with the serum and then the serum is incubated for an hour at body temperature and later inactivated for one-half hour at 56° C. Usually about 10 cc. of serum is used for this treatment. As soon as the serum is ready it can be administered intraspinally in the same manner as the first method. Ogilvie claims for this serum an advantage, that one is giving a known amount of salvarsan, whereas in the Swift-Ellis method the amount of salvarsan given is never known, as it is liable to vary in different cases and in the same case at different times. It is also claimed that considerable more salvarsan is administered by this method than by the S.-E. The intravenous injection is not neglected, however, and the patients receive every ten days or two weeks a full dose of salvarsan intravenously. One advantage of this method is the fact that it can be given much more frequently than the S.-E., and in some cases this is a decided advantage. We have been alternating these methods, S.-E. one week and Ogilvie on alternating weeks, and our results seem to justify us in continuing the combined methods. It is also much cheaper, which is an important factor to be considered in a large institution where 10 to 20 cases are treated weekly. The small ampule of salvarsan of .15 gm. dissolved in 50 cc. of distilled sterile water makes 600 doses, so that one uses $\frac{1}{10}$ of the cc. of this solution to obtain $\frac{1}{4}$ mg. of salvarsan. The amount of salvarsan may be increased to $\frac{1}{2}$ mg. without much danger, but it is preferable to give it more frequently and retain the dose at $\frac{1}{4}$ mg. In some cases we have obtained good results with $\frac{1}{8}$ mg., especially in female patients and children.

---

[8] The intraspinal treatment of syphilis of the central nervous system with salvarsanized serum of standard strength. Jour. A. M. A., Vol. LXIII, 22, March 28, 1914 (Hanson V. Ogilvie).

3. *Cerebral Puncture Method,* by Wardner[9] (designated as I. C. or C. P. in charts and text).—Dr. Wardner, of the Essex County Hospital, N. J., has developed the technique for intracranial puncture, as suggested by Levaditi, Marie and Martel in December, 1913, and has also perfected it to such an extent that we believe the treatment should bear his name. He has had marked success with this method and deserves credit for his initiative and perseverance in bringing the method to such a successful conclusion. The writer has personally seen his work and observed his cases and the results are altogether satisfactory. And we are inclined to believe that it is the method of selection in some cases, and can be advantageously combined with the S.-E. and Ogilvie methods.

The method in detail is as follows: The salvarsan is given intravenously in the usual manner and the blood collected an hour later and the serum treated exactly as in the Swift-Ellis method. The next morning the patient is prepared for cranial operation and given ether as anæsthetic. (We use exclusively the Clark apparatus for nitrous oxide, oxygen and ether anæsthesia, as we find the patients bear the anæsthetic better and the anæsthetizer is out of the way of the operator.) An incision is made over the precentral gyrus, midway between the ear and the median line of the skull. The flap is turned back and the temporal muscles separated. A trephine is then made with a Hudson drill, large enough to get a clear view of the dura and dural vessels. When the dura is exposed a lumbar puncture is then performed and sufficient fluid removed to reduce the intracranial pressure and overcome the tension of the dura. The serum is then put into an ordinary Luer syringe, attached to a special cerebral puncture needle bent at nearly right angle near the point, with a reinforced shank to facilitate its introduction under the dura. (This needle is made by Lentz, of Philadelphia, and we have found it very satisfactory.) The serum, about 30 cc. in amount, is allowed to flow in by gravity. We allow the lumbar puncture needle to remain in position while the serum is being administered, and if after the cerebral puncture needle is withdrawn there is a tendency for the serum to exude, more spinal fluid is removed. The opening is then closed and head bandage applied. The next puncture is made on the opposite side and the following punctures made in the same trephine opening.

---

[9] A report of five cases of the intracranial injection of auto-sero-salvarsan. Am. Jour. Ins., Vol. LXXXI, No. 3, Jan., 1915.

Logically this method should be preferred to the spinal puncture and although the clinical results of Wardner are excellent, still he was unable to reduce the globulin content or to influence very materially the Wassermann reaction in the spinal fluid. The blood Wassermann, however, was much reduced. We have been unable to produce any results by this method in cases where the intraspinous method failed. But as the cases in which it was tried were of the demented class it cannot be said that the test was altogether fair. But had the method proved efficient after failure of the intraspinous method no further proof of its efficacy could have been desired. We are utilizing the Wardner method with the S.-E. and O. M. methods and believe that the combination will prove efficacious. The advantage claimed and justly, is that fewer treatments are necessary by this method than by the others and thereby the arrest of the process occurs more rapidly, and we are inclined to agree with this view.

4. *Bichloride of Mercury Method* (as described by Brynes).[10] —The method in detail is as follows: About 6 ounces of blood are withdrawn into a sterile cylinder as in the O. M. treatment. This is allowed to stand and serum collected. It is then thoroughly centrifuged and after inactivating at 56° C. for one-half hour 1/50 of a gm. of mercury is added and well shaken to prevent precipitation. It is well to add this in solution to a small amount of serum and then if any precipitate occurs add more serum to take up this precipitate. Small glass beads in the cylinder assist in mixing the solutions. The serum is then ready for intraspinous injection in the usual manner. This serum deserves to be given a fair trial and if found to be efficient will prove a boon to the treatment of cerebro-spinal syphilis, principally because of the cost of salvarsan and the increasing difficulty of obtaining it. If the supply is exhausted then we will have to resort to this method.

Mulford has recently placed upon the market a bichloride serum containing 1/50 or 1/25 gm. prepared after the Brynes formula and at present we are using this preparation in the treatment of selected cases. We will admit that we have not chosen the most promising cases, but the results obtained seem to justify the opinion held by Brynes. We were of the opinion that the serum could be used as an adjunct to the salvarsan treatment, so it was given in two cases (3 and 31) who had improved materially under the salvarsan treatment. Unfortunately both of these cases were of the tabetic type and both had severe reactions following the bichloride treatment. One of these (case 3) recovered after a month and the other (31) died a month later. As we have seen these reactions occur in two other cases of tabo-paresis under salvarsan treatment, we cannot ascribe their collapse to the use of the bichloride serum. But we would advise caution in using it in cases previously treated by salvarsan. In other cases, where no other treatment had been employed, there were no accidents, and, as we stated, the results justify us in continuing its use.

---

[10] The intra-dural administration of mercurialized serum in the treatment of cerebrospinal syphilis, Dr. Charles Byrnes, Journal A. M. A., December 19, 1914, Vol. LXIII, pages 2182 to 2186. This method differs materially from the one described above because of the fact that the bichloride of mercury is used as the antispirochetal agent. The author claims that as good results can be obtained by this as by salvarsan. We are at present giving it a fair trial and the results of our experience will be given in a later communication.

5. *Cotton Methods.*—a. Administration of Ogilvie serum intracranially and intraventricularly. b. Administration of bichloride serum intracranially and intraventricularly.

Method a.—It occurred to the writer that if it was an advantage to have a maximum amount of serum introduced into the cortex by means of cerebral puncture, thus in order to get the maximum amount of salvarsan, the standardized solution of Ogilvie would accomplish that purpose. So we proceeded to introduce the Ogilvie serum intracranially and although our experience has been limited, at the same time we can report no untoward effects of this method of administration. The recent work of Hammond and Sharp[11] led us to try also the administration of the Ogilvie serum by means of a ventricular puncture. This has been done in several cases, but the advantage of these methods cannot be discussed as yet because our use of these methods has been of too short a period to allow us to form any conclusions as to their value.

Method b.—This consists in the administration of the Brynes serum by means of the intracranial and intraventricular puncture. The technique of these methods need not be described in detail, as the only variation is in the kind of serum used. But several cases have been treated with the bichloride serum by means of intracranial and intraventricular puncture without any bad results.

We believe that these methods can be combined with the other methods described with considerable advantage. The method is not difficult and can be administered without any bad effect upon the patient. The trephine is made in the usual way and after the dura is exposed a small caliber lumbar puncture needle (Quincke) is then inserted into the dura toward the median line and downward. As soon as the ventricle is reached the fluid begins to flow. The pressure can be measured and when sufficient fluid is withdrawn the serum placed in a Luer syringe is allowed to flow into the ventricle by gravity. Lumbar puncture is also performed at the same time.

---

[11] Reported at the meeting of the American Neurological Association, May, 1915.

A comparison of the fluid obtained from ventricular puncture and by lumbar puncture proved interesting. Fluid from the ventricular puncture in two cases showed the globulin content was negative while it was 3 + in the fluid from lumbar puncture. The cell count was 5 and 1 in the former fluid and 17 and 13 in the latter fluid.

6. *Intraventricular Administration Method* (Hammond and Sharp).—Salvarsanized serum administered by intraventricular puncture.

The authors of this method reported the technique at the meeting of the American Neurological Association in May, 1915, and as yet their work has not been published. The superiority of this method is based upon the claim that when a serum is introduced into the ventricle it flows over the cortex below the pia and consequently is more efficient than when given subdurally. We cannot discuss the merits of this claim except to say that in normal conditions Weed and others have proved that fluids and stains introduced into the subdural space penetrate readily to the cortex. In cases of paresis, however, with a certain amount of thickening of the pia it may be possible, as they claim, that the inflammatory condition of the pia prevents the absorption of the serum; at any rate it is another method to be thoroughly investigated and if the results prove to be better than those obtained by the methods heretofore used we will gladly welcome them.

Results of Treatment in Paresis.

The total number of cases that have been treated or are under treatment at the present time is 66, and in all 600 treatments have been given. Of this whole number some have only been treated for a short period and consequently cannot be used for comparative study at the present time. Therefore, we have selected 31 cases who have been treated for at least six months, but in all but a very few cases the treatment has been continued for over two years, or the patients have been observed for that length of time. We could add to this number quite a few cases who have been under treatment for several months with very good results, but it is not our purpose to inflate our statistics or make the treatment appear to be more efficient than it actually is. We feel that the results we have obtained, even when considered from a very conservative standpoint, will show the efficiency of the treatment without padding the statistics.

In classifying the results we find that we can place them in four distinct groups, except that the first and second groups overlap to some extent. At least we could place some of the second group among the first with a clear conscience, but we prefer to classify them as accurately as circumstances will allow. The grouping of the cases with the percentage of each group is as follows:

Group	(1)	Arrested cases	11	35.5%
"	(2)	Much improved	7	22.5%
"	(3)	Not improved	7	22.5%
"	(4)	Died	6	19.5%
		Total	31	

If we selected five cases of the second group who had had definite remissions, but in some cases later had relapsed, we would then have 16 cases out of 31, or 51.5 per cent of the cases treated, who showed marked improvement as a result of the treatment. Some of the cases in which the treatment had no effect were cases taken for experimental purposes with no expectation that they would be benefited, although we hoped that they would. If these cases were eliminated it would make the percentage of improved or arrested cases even higher than that given above. But our results, as they stand under the grouping, are encouraging enough so that for the present we will have to be satisfied with a percentage of 35.5 per cent for arrested cases.

GROUP I. ARRESTED CASES OF PARESIS (11 CASES, 35.5%).

An analysis of the first group of 11 cases shows that the duration of the psychosis prior to treatment varies from one month to three years. In two of the cases (6 and 11) the duration is difficult to establish, for in the former case neurasthenic symptoms were present for four years, although the outbreak of the paretic symptoms occurred only three months before admission to the hospital. In case 11 the patient had optic atrophy four years before treatment, although the symptoms of paresis were not noticed until six months previous to admission. The average duration of the process in this group before treatment was instituted was one year and three months, which is somewhat under the average duration of all cases admitted, one and a half years. Some of these cases were of the typical expansive variety, usually so easy to diagnose. Two were of the demented type, *i. e.,* without any marked delusions, dull and stupid, but not necessarily demented. We speak of a demented type as distinguished from an expansive, depressed or neurasthenic type. These patients usually show marked inefficiency in their work, loss of memory and general indifference, and appear demented. But the results of treatment prove that the confusion, dulness, etc., were not real dementia. Two cases were of a neurasthenic type and other than this showed no mental symptoms. One of the expansive types was also neurasthenic for four years before the onset of the expansive delusions. Two juvenile cases were also in this group, one 19 years (case 1) and the other 13 years of age (case 13). Both of these patients belonged to the demented type. In the former the onset of paresis was probably three years before treatment. The writer made a diagnosis of paresis from the clinical symptoms and positive lumbar puncture findings a year before treatment was started, and during that time the case became much worse. But in no case treated were the results so successful as in this one, and after a period of two years he still remains quite normal, except that he is somewhat nervous and unable to stand much excitement, and also has an occasional convulsion. The second juvenile case showed the first symptoms only one month before he was treated, and the results were equally as satisfactory as in case 1. When first seen this patient was unable to talk. Was dull, stupid and apparently demented. From this condition he was changed to a bright, alert boy who could come and go alone from the hospital in Trenton to Perth Amboy by trolley, which necessitated three changes. A Binet test made shortly after he began to improve showed him to be the mental age of 6, but six months later he was found to be normal mentally for his age.

Three patients of this group were women (cases 25, 3 and 10), and two of these women were tabo-paretics, the only tabo-paretics in group 1. One of these women (case 10) was the mother of the juvenile case (1), and her symptoms were not noticed until three years after the onset of the symptoms in her son. Her physical signs were noticed for one year, and the mental symptoms for about three months before she came under observation, at which time she was unable to walk on account of her tabetic condition. She was dull, stupid and indifferent and apparently becoming rapidly demented when treated. The results have been extremely successful and now she is able to walk around the city and attends daily to her household duties. Neither mother nor son was committed to the hospital, although in both cases that step would have been necessary very soon.

Another tabetic type was of the expansive maniacal type and she responded quickly to treatment, so that in eight months she was able to leave the hospital and has been employed as a housekeeper since that time. She had a relapse following a treatment with bichloride of mercury (Brynes method), which lasted two months and from which she subsequently recovered. The relapse was entirely physical and mentally she has been entirely normal. The tendency of the cases of tabo-paresis to relapse is rather marked, and will be described more in detail when we consider group 2.

The other female paretic (case 2) was not tabetic, but was a maniacal-expansive type with very sudden onset of the maniacal symptoms. These subsided in six months and patient had a spontaneous remission of her clinical symptoms, although the biological reactions were the same a year later. This is the only case in group 1 where the tendency to a spontaneous remission was present. Hence, her case was a favorable one and the results very successful. She was a German and when admitted to the hospital knew no English, but after treatment she learned English readily and now speaks it fluently. Another interesting fact in this case is that her husband died of paresis in a German hospital two years before she developed the disease.

The neurasthenic cases (6, 9 and 38) were males and in one of them (6) the symptoms were apparent for over a year. He complained of stomach trouble, nervousness and sleeplessness. He improved very much under treatment in spite of the fact that he suffered considerably from the reaction following the treatment. He gained 15 pounds in weight but he reacted to the treatment to such an extent that it had to be interrupted, after which he became worse and lost 30 pounds. Treatment was instituted again and since he has been treated regularly he has again shown marked improvement. The second case (9) had been suffering for four years. He was unable to work and much of his time was spent in various hospitals. He lost weight and gradually became worse. About three months before admission he developed expansive ideas, conduct disorders and had to be committed to this hospital. He improved rapidly under treatment and in a few months gained 45 pounds. He was able to leave the hospital and has been home for over a year, earning a living as clam digger. He occasionally has a return of his stomach trouble, but his general condition is good and he is normal mentally.

The third neurasthenic case (38) had symptoms for a year before treatment accompanied by physical signs of paresis. An examination of the spinal fluid revealed the fact that he had 73 cells per cc. and a strongly positive globulin. Since treatment he has gained both mentally and physically except for slight optic atrophy so that it was not necessary for him to be committed to the hospital, as he had good insight and came regularly to the hospital for treatment. While he is still under treatment the great improvement noted warrants us in giving a good prognosis.

In all these cases there was a marked gain in weight, from 10 to 40 pounds during treatment, with the exception of the cases which were well nourished at the beginning of the treatment.

In the six expansive cases in this group only one was a tabetic type (case 3 already described). All of these cases presented the clinical symptoms of paresis, both mentally and physically, and diagnosis was confirmed by lumbar puncture. They all improved rapidly and after five or six treatments appeared to be quite normal mentally. They, with the other cases in this group, soon developed good insight into their condition and lost their expansive delusions, memory disturbances, etc. The most interesting case in this group is case 7, who had shown symptoms for nine months previous to commitment to the hospital. Just previous to admission he went to Washington to consult a patent attorney about many inventions, tried to see the President, was arrested in Union Station and had to be brought home. After two treatments he lost his expansive delusions and was in fairly good condition, so that his wife removed him from the hospital against the advice of physician. He remained out five months, doing some work, but gradually became more expansive and excitable, so that it was necessary to return him. He was then given 11 treatments, after which he again became normal and this time was allowed to leave the hospital with the consent of the writer, which proved to be an error in judgment. He remained out from August to October, when he again developed expansive delusions and a condition similar to that when admitted. He was more irritable, fault-finding, demanding his release and showed absolute lack of insight. It was difficult to treat him, as he was inclined to resist. From this time on he was given weekly treatments, Swift-Ellis, alternating with Ogilvie, and frequently two or three Ogilvie treatments, followed by Swift-Ellis. This time he improved more slowly and it was nine months before he was allowed to have parole. At the present time (May, 1915) he is in normal mental condition. Has good insight, is on parole and is perfectly willing to remain until he is discharged in the regular way. This case illustrates the necessity for continued treatment, twice within two years treatment interrupted from three to five months with disastrous results; but by persisting in his treatment the result was good. He is still under treatment and prognosis is favorable. He gained 45 pounds in weight, but during the period he was out of the hospital he lost 25 pounds and since that time has again gained 15 pounds. Upon one occasion, March 3, 1915, after S.-E. treatment he developed an irritative meningitis, the cultures from which were absolutely sterile and the cell count 3000 per cc. Globulin rose from ± to 4 +. He had severe headache and at this time his temperature rose and he was very much confused. However, this condition rapidly cleared up and in two weeks the cell count was down to three, and globulin negative. Since that time his physical condition has improved rapidly.

Another expansive case (12) showed rapid improvement after the first two injections, was removed by wife, who considered him normal, but was only able to remain out two months. The expansive delusions returned in number; he showed no insight and the physical symptoms became worse. For the last eight months the patient has been living at home, returning to the hospital every two weeks for treatment. He was formerly a policeman, but now devotes his time to raising flowers, in which he is fairly successful. He showed no mental symptoms, but recently physical signs became a little more marked and treatments were started weekly instead of every two or three weeks as formerly.

Eight out of this group of eleven cases which were called arrested are living at home and three of them are undoubtedly prevented by the treatment from being committed to the hospital. The remaining three have unlimited parole and in one case for financial reasons prefers to remain at the hospital. All of these patients showed rapid clearing up of the mental symptoms and also in a large majority of the cases of the physical signs as well, with the exception of pupillary disturbances and changes in the knee jerks. Tremors, speech defect, unsteady gait, writing defects, all disappeared, so at the present time it would be difficult to make a diagnosis of paresis upon casual examination. Six of this group are still under treatment and have shown no tendency toward a relapse.

Treatment and Biological Reactions. The greatest number of treatments given in one case was 33, in case 7, and the least number of treatments was eight, in the juvenile paretic, case 13. Both these cases, however, are still under treatment. In the juvenile case the reactions after four months have gone from negative to positive and it will be necessary to continue the treatment, although there has been no relapse in the physical or mental condition. All the cases were started on the S.-E. treatment, but since January, 1915, those under treatment have received also the Ogilvie modification, in some cases exclusively, in other cases alternating with the former. Only one case has received S.-E. treatments exclusively (case 2), and the number given was 12. It is possible that this case will have to be treated again, as the Wassermann reaction in the blood has shown a tendency to increase.

Cell Count.—The cell count in group 1 by the Fuchs and Rosenthal method has varied from 115 to 4 on admission and before treatment. In six of these cases the drop in the cell count occurred rapidly after one or two treatments; in the others the drop was more gradual. The globulin, with the exception of case 3, also fell in strength from 4 + to –, along with the drop in the cell count. With interruption in the treatment as in cases 7, 9 and 12, in cases 7 and 9 the cell count and globulin showed a tendency to increase. In five of the cases there was a very strong positive globulin (4 +), while in one case (case 1) the globulin has been persistently negative. In case 3 the globulin remained 4 + after eight treatments, then began to fluctuate, varying between + and 2 +. In cases 6 and 9 (neurasthenic types) the cell count was very low, in the former 2 cc. and in the latter 8 cc. This count rose later in the former to 15, and in the latter to 10. In case 9, however, the globulin was 4 +, and this fact, taken together with physical signs, stiff pupils, etc., made the diagnosis possible, although the mental symptoms were those of a typical neurasthenic. The Wassermann reactions in these two cases were also atypical, in case 6 both being persistently negative and in case 9 blood Wassermann persistently negative, but spinal fluid Wassermann occasionally becoming +. Case 7 also showed some deviations from the usual findings, as the cell count was low, only 12, and globulin +. The cell count varied considerably and after the second interruption went as high as 30, but at the present time it is down to 6 and the globulin negative. It is interesting to note that in two cases (1 and 2) the cell count remained practically the same after a year's interval before treatment was instituted and globulin content was also the same. In case 1, the clinical symptoms were progressing rapidly, patient becoming more demented, while in case 2 there had been a spontaneous remission, although the cell count and globulin had not changed. The globulin reaction is of extreme importance in the diagnosis of paresis and also is an indication as to the efficiency of the treatment. It is never safe to discontinue treatment while the globulin is positive. In the majority of our cases, those of the arrested process as well as in others, the effect of the treatment was to reduce the globulin. The cell count should also be carefully watched in order to determine how long treatment should be continued, and then, with the cell count and globulin negative, treatment should be continued for some time longer, even when no clinical symptoms are present, with occasional intervals of interrupted treatment, to determine whether or not the process has again become permanently negative.

Wassermann Reactions.—The Wassermann reactions either in the blood or spinal fluid cannot be used as a means of diagnosis, as they are apt to be absent in about 15 per cent of the cases, but when present at the beginning of treatment they act as very efficient indicators to determine the question whether or not the treatment should be continued. In six of our cases the blood Wassermann was strongly positive before treatment and in all but two cases (6 and 9, neurasthenic types) was positive some time during the treatment. In these cases the blood Wassermann continued persistently negative. One case (38) blood Wassermann negative at beginning, at one time became 2 +, but has since been negative., The Wassermann reaction in the spinal fluid in nine cases of this group was strongly positive. In one case (7), however, Wassermann started at negative, gradually became + and finally became 4 +, where it remained for nine months. Then the break came and finally we were able to reduce it to ± and since then it has fluctuated. Where the spinal fluid Wassermann remains strongly positive after continued treatment, we have found it extremely difficult to reduce, and it is probably the most resistent reaction to treatment. We have found that it is not wise to discontinue treatment at any time with this reaction positive. In this group, however, we were able to reduce the Wassermann to negative in a larger percentage than in the other three groups. In group 4, those who died during treatment, spinal fluid Wassermann was not influenced by treatment, although the blood Wassermann was reduced to negative in all cases except one. When treatment has been discontinued there has been a tendency for the spinal fluid Wassermann to become positive, except in those cases when treatment has been continued sufficiently long to arrest the process permanently.

(To Be Continued.)

Proceedings of Societies.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

PROCEEDINGS OF THE SEVENTY-FIRST ANNUAL MEETING.

Fortress Monroe, Va., Tuesday, May 11, 1915.
First Session.

The Association convened at 10 a. m. in the Convention Hall of the Hotel Chamberlin, Fortress Monroe, Va., and was called to order by the President, Dr. Samuel E. Smith, of Richmond, Ind.

The President.—The Association will please come to order. I have the honor to declare the Seventy-first Annual Meeting of the American Medico-Psychological Association now in session.

We will hear the invocation by the Rev. A. A. Pruden, chaplain at Fortress Monroe, Va.

Major Pruden then offered the invocation.

The President.—Governor Stuart, of Virginia, is unavoidably absent this morning, but we have a representative of this great commonwealth of Virginia, who will say a few words of welcome. This gentleman is well known throughout the State of Virginia and the surrounding country; he has taken a prominent and active part particularly in the uplift of mankind and has given some attention to the cause we are interested in—the treatment of insanity. I have great pleasure in presenting to you Hon. Harry R. Houston, of Hampton, Va.

Mr. Houston.—*Mr. President, Members of the American Medico-Psychological Association, Ladies and Gentlemen:* I wish to preface my few remarks by extending to you, on the part of the State of Virginia, the "glad hand," or rather, express to you that well-known phrase, "Welcome to our city." I would also preface this address by thanking the chairman and members of your Committee on Arrangements for the kind partiality they have shown in the honor of asking me to deliver a welcome from the Old Dominion, and particularly from this section of the Old Dominion, Tidewater Virginia.

You will observe on your program, and gather from what has been said by your President, that I was really intended as "second in command" on this occasion. When I accepted the invitation, I thought I would be like what is described of the Western country where the air currents are a little treacherous. Out there when there is to be a balloon ascension they send up small balloons first, in order that they may test the air currents before the main ascension. This I presumed would be my province this morning—simply as an atmospheric tester for Governor Stuart; but, as has been explained to you, he was unavoidably detained, and so we will have to look upon it as did the old colored man when the lightning struck his barn—he said, "God moves in a 'mischeevious' way his blunders to perform."

It is quite an honor to stand here, even if second in command, and give you the message which the Governor of our state was invited to deliver, but it is a still greater honor and pleasure to address such a prominent and intelligent body of men as compose this Association assembled here to take counsel in a work which our commonwealth regards as one of the greatest that is carried on within its borders. It is not a theoretical "uplift," but one of those problems of dire necessity which confront every commonwealth and which, to a greater or less degree, are carried on by our ablest and best physicians, in many instances at a sacrifice. So I congratulate you upon your mission and tell you that I appreciate being able to speak to you.

Now, again, I deliver to you a welcome from the State of Virginia. The hospitality of Virginia has been noted for centuries, and so there may be little said on that subject. I am indeed sorry, however, that the Governor is not here to tell you of Virginia in all of its phases, because the first work the Governor of Virginia has to perform is to write a speech upon Virginia. He generally prepares this before he prepares his message to the Assembly. These eloquent addresses go over, page by page, the great history of Virginia. Of all the Governors of Virginia that I recall, I believe I like ex-Governor Swanson's speech the best, perhaps because I know it nearly by heart; it was delivered 43 times at the Jamestown Imposition—I mean, Exposition. It is extremely unfortunate, therefore, that we do not have the privilege of hearing one of these masterpieces on Virginia.

We can talk about Virginia at county fairs, etc., without fear of successful contradiction, but when you speak of Virginia as the biggest state in the country, in a gathering like this, there is likely to be some one from the Lone Star State who will get up later on and tell us about Texas; and when you speak of Virginia as the richest state, some one from New York or Pennsylvania is likely to take exception to it. We have the particular distinction of being the mother of states and the mother of statesmen, but some are even trying to take this from us. There is one thing, however, that we can agree upon, and that is the quality, if not the quantity, of the people of Virginia, or rather, the people that compose that great family known as Virginians, wherever they may live. It is difficult to find a man anywhere in the United States who will not tell you that Virginia was his mother's state or his father's state, or that, through some ancestry, he goes back to old Virginia. As I have traveled about in the North, West and South, I have always found people in every audience who would join in that chorus:

> "Carry me back to Old Virginia—
> There's where the cotton, corn and sweet potatoes grow;
> There's where the birds warble sweetly in the Springtime;
> There's where this good old darkey's heart longs to go."

We might all agree, however, that this is the best section of the State of Virginia, here at Old Point Comfort. (This, incidentally, is where I live.) It was here, about 308 years and 10 days ago, the first Anglo-Saxons landed in this country, and right at this spot where you sit to-day, or perhaps within a stone's throw of it, the first Anglo-Saxons set foot upon American soil, and there planted the first permanent Anglo-Saxon settlement, which has continued from that day until this in the form of a little city by the name of Hampton, formerly the old Indian village of Kecoughtan. Now, Hampton at that time was a very large city. It is a thriving and important center to-day, but in those days, like all Gaul, it was divided in three parts. There was Hampton, North Hampton and South Hampton. South Hampton extended from Cape Henry to St. Augustine, Fla., and North Hampton extended from Cape Charles to the North Pole!

As we gather here our minds naturally turn, therefore, to that scene when our forefathers set foot on this soil and were extended so cordial a welcome by the Indians who inhabited this shore. And this is the welcome I would give to you to-day, as you come from all the states to one of the original shires on the shores of Tidewater Virginia, at Old Point Comfort.

I would not take up your time by telling you of all the things that have occurred here, because the history of Hampton is almost the history of Virginia, and the history of Virginia is almost the history of the United States. We do not live in the past, anyway. We are actively engaged in the affairs of the day, looking forward with confidence to the future. You will find about Hampton many places of interest and many thriving industrial communities.

Now, my friends, to this beautiful country I extend you a most cordial welcome. I sincerely trust that as you go away you will take with you what most surely you will leave behind—pleasant recollections of a delightful stay and a longing to return again. [Applause.]

THE PRESIDENT.—We have another gentleman with us this morning, Mr. Robert Gilliam, a member of the Board of Directors of the Central State Hospital, at Petersburg, Va.; if he will come forward we will be pleased to hear his word of welcome. I should say, before Mr. Gilliam begins his remarks, by way of introduction, that he has been for some thirty years a member of the Board of Directors of the hospitals for the insane of Virginia, the longest record, I think, which has ever been made in the commonwealth. He has manifested an active interest in the cause of the unfortunates of the State of Virginia, and we are much pleased to receive him here this morning.

MR. GILLIAM.—*Mr. President, and Gentlemen of the American Medico-Psychological Association:* I regret very much that I was unable to be here at the opening of your session; I regret that I had the misfortune of not hearing Mr. Houston's remarks. Possibly what I may have to say to you will sound like a "twice told tale." However, gentlemen, I will have to do the best I can under the circumstances.

Your President has said that I have been connected with the hospitals of Virginia for about 30 years. I have been for more than 27 years a director of the Central State Hospital of Virginia, at Petersburg.

Alone to my 27 years of service as a member of the Board of Directors of the Central Hospital of Virginia can I attribute the honor conferred upon me to extend to you to-day the greeting and welcome of the Commissioner and General Board of Directors of the State Hospitals of Virginia; a welcome to that section of Virginia where the first permanent settlement of English-speaking people was planted; a welcome to the "Cradle of the Republic."

On the 26th of April, 308 years ago, English colonists to the number of 105, in three little ships, *Discovery, God Speed* and *Susan Constant,* of the total burden of 160 tons, and under the command of Captain Christopher Newport, after a long and tempestuous voyage, sailed into "The Mother of Waters"—the Chesapeake Bay, through the Virginia Capes; to the northern of which they gave the name of Charles, and the southern Henry, after the sons of King James the First.

Among these colonists were Bartholomew Gosnold, the promoter and mainspring of the expedition; that famous chevalier, John Smith, who was to become the "soul of the enterprise" and the "founder of Virginia"; Rev. Robert Hunt, a devout clergyman, who was to plant the church in the Old Dominion, and with them many other worthies.

On coming into the bay they first landed near Cape Henry, where they were saluted by the Indians with a shower of arrows; to which they responded with a volley from their "fusees," and retired to their boats. Sailing along the southern shores of the bay, they again landed, for a little while, near Sewell's Point, the site of the Jamestown Exposition, just opposite to us. Then they discovered "Point Comfort," where you now sit, and floating into the cove just southwest of us, were met by five of the natives, who invited them to their town—Kickotan, now the site of Hampton, which you visit to-morrow. Here they were feasted with cakes made of Indian corn and, as an old author says, "regaled with tobacco and a dance." From Kickotan their little barks were wafted by the gentle breezes of a southern Spring up that beautiful river—Powhatan, to which was given the name of James, in honor of the King.

About 30 miles up this lovely stream, on the 13th day of May, Anno Domini 1607, in the reign of His Majesty James I, a landing was made on what was then a peninsula—now an island. This they named Jamestown, and here the first settlement took place and the seat of government was established, and here it remained till 1698.

About seven miles inland from this point, at Williamsburg, the new capital, in November, 1769, by an act passed by the "Governor, Council and Burgesses of the General Assembly of Virginia," was founded and established the first public hospital in America "for the support and maintenance of idiots, lunatics, and other persons of unsound mind." The corporation was styled: "The Court of Directors of the Public Hospital for Persons of Insane and Disordered Minds." Twelve hundred pounds were appropriated for buildings, and £25 per annum for the support of each patient.

There were in 1845, says an old historian, "always above an hundred inmates of this hospital." At that time a distinguished alienist, Dr. J. M. Galt, was superintendent.

In 1825 an act was passed establishing another hospital, which is located at Staunton. Of this Dr. Francis T. Stribling was superintendent.

By an act of November 5, 1870, the Central State Hospital for the care of the colored insane was created. This was located temporarily at Richmond—is now at Petersburg. Later the Southwestern, of which the lamented Dr. R. J. Preston, a former President of this Association, was, at the time of his death, superintendent.

In 1910 the State Epileptic Colony, of which Dr. A. S. Priddy is superintendent, was established at Lynchburg. This colony and our hospitals at Williamsburg, Staunton, Marion and Petersburg are doing fine service. The superintendents are experienced men and well trained in their line of work.

There are about 5000 patients in our hospitals. Although some are crowded, all the certified cases of insanity, white and colored, are promptly taken into one or the other of the five hospitals, none being allowed to linger in jail. Many years ago mechanical restraint of all kinds was abolished. Diversional occupation holds a prominent place in the treatment of our patients. Separate provision has been made for the criminal insane, and at each institution the tubercular cases are treated in separate buildings.

Our commitment laws insure voluntary and emergency commitment, and all proceedings regarding commitment are simple.

The medical staffs of the institutions have an organization, meeting twice a year, for the purpose of keeping abreast of the times in those matters in which they are especially interested, and a movment has been inaugurated to organize a State Society for Mental Hygiene.

Steps have been taken looking to the publication of a quarterly, the chief aims of which will be to disseminate proper knowledge regarding prevention of insanity, feeble-mindedness, etc., and to urge early treatment, proper fore-care, after-care, etc.

Under the control of a General Board of Directors, a Commissioner, and Special Boards of Directors, the institutions are conducted economically and in a business-like, uniform and efficient manner. A number of these directors, all the superintendents, and some of the assistant physicians, are *here,* to learn more about insanity and hospital management and to welcome those who have come from other institutions.

Our hospitals are not magnificent structures, nor are they splendidly equipped, but they give kindly care and good treatment to *all* Virginia citizens who seek their shelter, and without cost to them. The past 20 years has witnessed a new awakening in the care of the insane; during that time great advances have been made.

Mr. President, this Association is the oldest national medical society in the country. Since its organization, in 1844, it has been the chief means of spreading, through its members, knowledge regarding the best methods of care and treatment of the insane. This society of nearly 1000 alienists, representing every part of Canada and the United States, has always stood for progress in scientific psychiatry, and in the humane care of the insane, state care, etc. A Virginia superintendent, Dr. Francis T. Stribling, was one of the trio, Dr. Woodward, of Massachusetts, and Dr. Awl, of Ohio, being the others, who were instrumental in bringing about the organization of the society, and the before mentioned Dr. J. M. Galt, another distinguished Virginia superintendent, was one of the original 13 charter members. Two other Virginia superintendents, Dr. R. J. Preston and Dr. W. F. Drewry, have been Presidents of the Association, and the forebears of several of your most eminent members were Virginians. This is true of the present President (Dr. S. E. Smith).

The presence here of distinguished representatives from other states who are engaged in the care and treatment of the insane and the management of institutions, public and private, means much to our people, especially to us who are connected with our state institutions.

What is said and done at this convention will reach the people's ear and further enlighten and encourage us to go forward to better things than ever for our insane, epileptics, and mentally subnormals.

Mr. President and gentlemen of the Association, you are cordially invited to visit, during your stay in Virginia, all of our state hospitals. At all of them you will receive the same hearty welcome that is extended you here to-day.

May your visit be an inspiration to us to go forward with the good work committed to our charge, and, if I may be permitted to paraphrase an old verse,

> Long may you live in health and peace,
> And every hour your joys increase.
> To this let every swain and lass
> Take sparkling, brimming, flowing glass,
> Then join the sprightly dance, and sing
> Welcome our guests and the joy they bring.

I thank you very much, gentlemen, for your attention. [Applause.]

THE PRESIDENT.—The Association thanks the distinguished gentlemen for their words of cordial welcome to the Old Dominion State. That we have a pleasing memory of its hospitality is evidenced by the fact that we come for the fourth time to this great Commonwealth of Virginia, and for the second time to this historic spot of Old Point Comfort, to find a congenial meeting place. While we are here primarily for some earnest work, we are not averse to a little play, because we have been told recently by a distinguished confrere that, among other things, men live by work and play. You are, therefore, at liberty to proceed with your hospitable entertainment, and I assure you that the members of the Association will receive it warmly or coldly, as you may present it, with open minds and—mouths. And if, perchance, there should be any conflict of the two programs I shall deem it my bounden duty to appoint the Vice-President and a committee of three to look after the work while the remainder of us shall constitute a committee on *reception of entertainment.*

We are indeed happy to come to Virginia, which has made so much history, important in the annals of American government and development, and whose romance and chivalry, so beautiful and unique, have enthralled the entire English-speaking world. Some of us are here by native right and proud indeed of the Virginia blood that courses in our veins, and none of us, I am sure, feels himself a stranger in the warmth of your cordial welcome.

We come from nearly every state in the union and most of the provinces of the Canadian Dominion, with greetings of good will, and respectfully and reverently do homage to the memory of your departed men and women who, by their statecraft, courage and sacrifices made this republic possible. We come, too, with congratulations to you for preserving and maintaining so well the ideals of the fathers, for the industrial development and spirit of progress we see everywhere about us, and last, but not least, for the deep and active interest you are manifesting in the uplift of mankind as is shown by the high standard of your public charitable institutions. We are indeed happy to be here and to hold this meeting almost in the shadow of the first state hospital for the insane constructed in America; only a few miles distant is the old institution at Williamsburg, which we have been very cordially invited to visit. We are assured that our brief sojourn with you will be helpful and profitable to us, and we trust that we may so conduct ourselves in the enjoyment of the freedom and privileges you so graciously extend to us that we may be permitted to come at another time. The story is told in my own city of a son of Erin and a mechanic, who, in spite of repeated admonitions, continued to lower his efficiency by his convivial habits. The superintendent of the plant found Patrick unfit for work one morning, relieved him from duty, and later sent him a letter discharging him, and enclosing his pay-check. Pat disappeared, but at the end of five days he returned to the shop and took his place at his old machine. The superintendent soon observed him with surprise and accosted Pat by asking him why he was there. Pat said, "To work." "But," said the superintendent, "didn't you receive my letter?" "Sure," said Pat, "I received your letter." "But didn't I discharge you?" said the superintendent. "Sure," said Pat, "you did discharge me." "Well, then, why are you here?" "It is this way," said Pat; "in the letter you discharged me all right, but printed on the corner of the envelope were the words, 'Return in five days,' and so I am here."

I hope your cordial greeting has a return superscription upon it. Again I thank you. [Applause.]

The President.—The first in order will be the report of the Committee of Arrangements, Dr. Drewry, chairman.

Report of the Committee of Arrangements.

Mr. President, Ladies and Gentlemen: Your Committee of Arrangements unites with Mr. Gilliam, the representative of our state hospitals, and Mr. Houston, a Virginia statesman of repute, in giving you a cordial greeting. We regret that Governor Stuart was unable to be here to also extend you a welcome to this old commonwealth.

The original Committee of Arrangements, appointed by you, Mr. President, composed of the superintendents of our state hospitals, Drs. DeJarnette, Priddy, King, Brown, and the speaker, was, thanks to the State Board of Hospital Directors, enlarged by the addition of a sub-committee of their members, viz.: Messrs. Whitehead, Bohannon, West, Landes, Morgan, and Commissioner Bauserman; and Mr. Stearns, of the State Board of Charities, was also added to this committee. These, with others connected with our institutions, constitute a general reception committee to give a good time to our visiting friends.

We are pleased in having Dr. Douglas S. Freeman, a distinguished layman who is closely identified with the movement for the general uplift, to make the annual address to-morrow evening.

With the approval and co-operation of your Program Committee, we have provided for some social entertainment that will, we trust, divert your minds for the time being from the weighty scientific papers and discussions, and give you a few carefree moments.

By courtesy of the commanding officer of Fortress Monroe, we have been invited this afternoon to visit the coast batteries and afterwards witness a regimental parade on the splendid parade grounds. Cars conveying us to the batteries will leave at 4 o'clock, a point a few hundred yards from the hotel.

To-morrow, Wednesday afternoon, the committee has provided for a boat ride on Hampton Roads. The boat *Endeavor* will leave the dock near the hotel at 2.30 o'clock, and return about 6 o'clock. You will see on the trip one of the finest harbors in the world, and get a glimpse of some points of historic interest; such as the Rip Raps, the site of the naval battle between the *Monitor* and the *Merrimac*, the National Soldiers' Home, etc. By courtesy of Mr. Palen, assistant general manager of the Newport News Shipyard, a 30-minute stop will be made to see that great plant.

Wednesday evening, following Dr. Freeman's address, there will be a reception to the orator of the occasion and the President. After the reception we will be the guests of the hotel. There will be dancing.

Thursday, the officers of the Hampton Normal and Agricultural Institute have invited us to their institution and will tender us an entertainment in which the performers will be from the student body. It is worth your while to see this great institution, where several hundred young colored people and some Indians are being trained to useful citizenship. Special cars, leaving from the front entrance of the hotel at 11.30, will convey the members to and from the institute, leaving there about 1.30 p. m., returning to the hotel in time for lunch.

The Virginia and the Borough Clubs and the Business Men's Association in Norfolk have extended to our members and their guests the privileges of their clubs.

Upon registration each member of the Association and each guest, including, of course, the visiting ladies, whom we are especially glad to have with us, will be given cards simply as reminders of the entertainments. Identification badges will also be given to the members of the Association.

The Committee of Arrangements wishes to thank the managers of the Hotel Chamberlin, the officers of Fortress Monroe, and those of the Hampton Institute, for their assistance in connection with the social and other features of this meeting. The committee also takes this occasion to express its appreciation of the cooperation and aid on the part of the officers of the Association, and of the Maryland Psychiatric Quarterly, in the "Old Point" issue.

Respectfully submitted,

W. F. DREWRY, *Chairman.*

THE PRESIDENT.—The Committee of Arrangements has certainly given us a very full program, and it may be necessary to appoint the committee referred to a moment ago.

On motion, the report of the Committee of Arrangements was accepted and adopted.

THE PRESIDENT.—It is now in order to hear the report of the Council, by the Secretary.

REPORT OF THE COUNCIL TO THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

FORTRESS MONROE, VA., May 11, 1915.

The Council met on the evening of May 10, 1915, at the Hotel Chamberlin, Fortress Monroe, Va.

The Council has received and transmits herewith the report of the Treasurer for the current year; also a statement of the membership of the Association to date.

The Council recommends for election to active membership the following named physicians. This list was presented to the Association a year ago, and these names are now submitted for final consideration:

Albert Anderson, M. D., Raleigh, N. C.; Paul V. Anderson, M. D., Richmond, Va.; F. A. Carmichael, M. D., Osawatomie, Kans.; J. Henry Clark, M. D., Newark, N. J.; O. H. Cobb, M. D., Syracuse, N. Y.; Guy L. Connor, M. D., Detroit, Mich.; Herbert C deV. Cornwell, M. D., New York, N. Y.; W. D. Deuschle, M. D., Columbus, O.; H. H. Drysdale, M. D., Cleveland, O.; S. J. Fort, M. D., Baltimore, Md.; Andrew C. Gillis, M. D., Baltimore, Md.; James K. Hall, M. D., Richmond, Va.; Robert Henry Haskell, M. D., Ionia, Mich.; Kenneth B. Jones, M. D., Baltimore, Md.; William A. Jones, M. D., Minneapolis, Minn.; Frank W. Keating, M. D., Owings Mills, Md.; Grover A. Kempf, M. D., New York, N. Y.; Alfred O. Lewis, M. D., Philadelphia, Pa.; Hersey G. Locke, M. D., Syracuse, N. Y.; John T. MacCurdy, M. D., New York, N. Y.; Convas L. Markham, M. D., Amityville, N. Y.; Eugene H. Mullan, M. D., Ellis Island, N. Y.; Michael Osnato, M. D., New York, N. Y.; Charles E. Ross, M. D., Wichita, Kans.; Charles F. Sanborn, M. D., Cincinnati, O.; Carl W. Sawyer, M. D., Marion, O.; Haigt Sims, M. D., Montreal, Que.; L. Gibbons Smart, M. D., Lutherville, Md.; Wesley Taylor, M. D., Detroit, Mich.; Walter C. Van Nuys, M. D., New Castle, Ind.; J. F. Wen Glesky, M. D., Milwaukee, Wis.; Harold W. Wright, M. D., Santa Barbara, Cal.; Ernest H. Young, M. D., Kingston, Ont.

The Council recommends the transfer of the following named associate members to the active class:

G. E. Hatcher, M. D., Cerulean, Ky.; Sylvester R. Leahy, M. D., Brooklyn, N. Y.; Herbert Lee, M. D., St. Joseph, Mo.; James Gordon McKay, M. D., New Westminster, B. C.; James H. Randolph, M. D., Jacksonville, Fla.; A. Warren Stearns, M. D., Boston, Mass.

The Council recommends that the following named physicians be elected to associate membership:

Frank S. Bachelder, M. D., Pontiac, Mich.; Freeman R. Bannon, M. D., Richmond, Ind.; Blinn A. Buell, M. D., Binghamton, N. Y.; H. G. Clarke, M. D., Boyce, Pa.; Wm. Alfred Conlon, M. D., Central Islip, N. Y.; A. S. Cooper, M. D., Jackson, La.; A. Burton Eckerdt, M. D., Warm Springs, Mont.; W. A. Ellison, M. D., Milledgeville, Ga.; Edward H. Ende, M. D., Central Islip, N. Y.; T. W. Evans, M. D., Jackson, La.; Elias Fischbein, M. D., Sonyea, N. Y.; Ralph P. Folsom, M. D., New York, N. Y.; Howard M. Francisco, M. D., Nashville, Tenn.; S. H. Frank, M. D., Boyce, Pa.; Wm. C. Garvin, M. D., New York, N. Y.; Harold I. Gosline, M. D., Hathorne, Mass.; David K. Henderson, M. D., Baltimore, Md.; Charles S. Holbrook, M. D., Jackson, La.; Earl K. Holt, M. D., Logansport, Ind.; Marion E. Kenworthy, M. D., Gardner, Mass.; G. S. Llewellyn, M. D., Boyce, Pa.; James F. McFadden, M. D., Foxborough, Mass.; George A. MacIver, M. D., Worcester, Mass.; B. Henry Mason, M. D., Worcester, Mass.; Harlan P. Mills, M. D., Phoenix, Ariz.; Philip B. Newcomb, M. D., Osawatomie, Kans.; Alton L. Smiley, M. D., Pueblo, Colo.; Edith R. Spaulding, M. D., Sherborn, Mass.; Annie E. Taft, M. D., Boston, Mass.; Melvin J. Taylor, M. D., Poughkeepsie, N. Y.; Charles W. Thompson, M. D., Pueblo, Colo.; E. Mabel Thomson, M. D., Sonyea, N. Y.; Douglas A. Thom, M. D., Palmer, Mass.; George Allen Troxell, M. D., Medfield, Mass.; Bernard McHugh Cline, M. D., Milledgeville, Ga.; Fred L. Darrow, M. D., Richmond, Ind.; Mary Wickens, M. D., Richmond, Ind.

The Council has received the following applications for active membership. In accordance with the constitution, final consideration of these will be deferred until next year:

Jau Don Ball, M. D., Oakland, Cal.; George S. Bliss, M. D., Fort Wayne, Ind.; E. A. Farrington, M. D., Haddonfield, N. J.; Lewis M. Gaines, M. D., Atlanta, Ga.; A. P. Goff, M. D., Manila, P. I.; Thomas H. Haines, M. D., Columbus, O.; Charles W. Halterman, M. D., Weston, W. Va.; Ralph L. Hill, M. D., Woodville, Pa.; George E. Hyde, M. D., Blackfoot, Idaho; James W. MacNeill, M. D., Battleford, Sask.; James W. Milligan, M. D., Michigan City, Ind.; Michael J. O'Meara, M. D., Worcester, Mass.; H. Douglas Singer, M. D., Kankakee, Ill.; Jeannette F. Throckmorton, M. D., Charlton, Iowa; C. F. Williams, M. D., Columbia, S. C.; Frankwood E. Williams, M. D., Boston, Mass.; Hansell Crenshaw, M. D., Atlanta, Ga.

The Council has received the resignations of the following members, and recommends that they be accepted in so far as their dues are paid:

Wm. W. Coles, M. D., Keene, N. H.; John J. Harrington, M. D., New York, N. Y.; Wallace W. Knowlton, M. D., Boston, Mass.; Guy G. Fernald, M. D., Concord Junction, Mass.; Thomas Littlewood, M. D., Pittsfield, Mass.; Horace Phillips, M. D., Philadelphia, Pa.; Nelson W. Thompson, M. D., New York, N. Y.; A. W. Thomson, M. D., Poughkeepsie, N. Y.

The Council recommends that the name of Dr. Albert M. Cross, of Evansville, Ind., be dropped from the membership list of the Association, for conduct unbecoming a member.

The Council also recommends that when papers published in the AMERICAN JOURNAL OF INSANITY contain illustrations, tables, etc., the authors be required to pay the excess over ordinary printing, and three-fourths of the cost of the illustrations.

The following is a statement of the membership of the American Medico-Psychological Association to date:

HONORARY MEMBERS.

Former number	19	
Admitted	1	
Died	2	
Present number		18

LIFE MEMBERS.

Present number		17

Active Members.

Former number	452	
Associate to active	13	
Admitted	24	
Active to life	17	
Resigned	11	
Dropped	1	
Died	6	
Present number		454

Associate Members.

Former number	250	
Admitted	59	
Associate to active	13	
Resigned	3	
Dropped	1	
Died	3	
Present number		289
Total membership May 7, 1915		778

Respectfully submitted,

Charles G. Wagner, *Secretary.*

The President.—You have heard the report of the Council, what is your wish in regard to it?

Dr Henry M. Hurd.—I move that the report of the Council be accepted and adopted.

Seconded.

Dr. Wm. A. White.—I have no objection to the adoption of the report, with the exception of that portion which refers to the matter of printing illustrations with articles in the Journal of Insanity.

The President.—Dr. Brush will you explain the matter?

Dr. Brush.—What is it that it is desired to be explained?

The President.—The matter of printing illustrations accompanying papers in the Journal of Insanity.

Dr. Brush.—We get papers that are accompanied by long tables which require large expenditure in their reproduction and it seems to me no more than fair that the gentlemen who wish to embellish their articles with illustrations, or who wish to present long tables, should pay for the illustrations a certain proportion of the expense, and for the tables the excess in cost over a page of ordinary composition. It is a matter of no consequence whatever to the editors of the Journal; the Journal is the property of the Association, but the editors are trying to continue the

JOURNAL so as to make it a paying proposition. If we were to publish some of the manuscripts that have been sent to us, the cost for a single article would be more than the cost of the publication of a single number of the JOURNAL. It is obviously up to the Association to say whether it will take money out of the treasury and pay the deficit which is bound to occur, for the publication of the JOURNAL, or ask these gentlemen, who sometimes present illustrations that are very desirable, but who occasionally present illustrations in excess of what is really desirable or necessary to illustrate their article, to bear a portion of the cost. I have in mind an article by a gentleman, not a member of this Association, who felt very much hurt because I wrote him that I should be very glad to publish the illustrations if he would pay for them.

DR. BANCROFT.—I think it is true there may be a tendency on the part of some to present illustrations which are not necessary in connection with the subject with which they deal, and I think it should be the duty and right of the editors of the JOURNAL to discard some of the illustrations just the same as they have the right to discard a whole communication; it is of course a matter of principle. The expense is probably in no case very considerable. It seems to me that the Association could save money in other ways rather than by curtailing the freedom of presenting material in any form which is thought best.

DR. MABON.—I endorse what Dr. Bancroft says. It seems to me it will lessen the value of the JOURNAL OF INSANITY if we take action of this kind. The matter is in the hands of the editors and they should exercise the powers of the Association.

DR. EVANS.—I think the point taken by the last gentleman who spoke is well taken. It would seem that this would put a check upon the publication of some of our most valuable articles. I have no doubt Dr. Brush has gone into this matter very carefully, and that he has established to his own satisfaction the fact that a good many illustrations come in that might fittingly and properly be omitted, but it is highly important that papers which need illustrations should have illustrations and that such articles should be encouraged in our JOURNAL. There is no mention made of a condition such as this: If a writer furnishes inserts whether they would be received and incorporated into the report without any additional cost. I presume Dr. Brush could answer that. A number of the hospitals have their own printing outfits and are equipped to get out any little inserts. It would be a good point to know this. Most of the other journals do that.

DR. BRUSH.—It goes without saying if a man furnishes his own illustrations it will not cost the JOURNAL anything except in binding or printing. As to the majority of our illustrations in the JOURNAL, I doubt if any hospital has the facilities for making them, and the editors would not feel justified in using illustrations which did not come up to the standard the JOURNAL has established. Dr. White is the only editor that furnishes half-tone illustrations, and I know of practically none that furnish any kind of illustrations unless they are paid for.

Dr. Henry M. Hurd.—There are illustrations and illustrations. I would urge against putting an insert in; I should prefer to have the Association go bankrupt than to have that done. The great expense comes with illustrations that require lithographing. The great majority of those who make the colored illustrations become unduly enamored of them.

They think the colors themselves are most remarkable and forget that the colors exhibited are just as artificial as anything else in the staining for the microscope; that the color is not the actual thing as represented. When they see the different colors which seem very artistic they feel as though the tissues looked the same. This artificial coloration is what costs. If the members of the Association would be satisfied to have black and white illustrations there would be less said about the cost, but these illustrations in many colors are very expensive; I have known of such illustrations that cost from $300 to $500. When I was editor of the publications of The Johns Hopkins Hospital, I always published the illustrations without expense to the authors, but I generally had a quarrel with them to keep from bankruptcy.

Dr. Work.—It is very evident that these members who have spoken feel that the Chair is in need of enlightenment, and that the purpose of their remarks is solely to enlighten the Chair. We are unable to hear anything that has been said, with one or two exceptions.

Dr. Brush.—I think it should be said in justice to several members who have published illustrations, that they have freely made the suggestion that they bear a proportion of the cost of preparation of the plates. I have in my hand at present a bill for one number of the Journal, and the illustrations cost exactly one-fourth of what it cost to publish that number of the Journal. The gentleman who furnished that article made no objection to paying one-half the cost.

Dr. C. B. Burr.—I move that that portion of the report referring to the publication of illustrations in the Journal be referred to the editors of the Journal, with the expression that it is the sense of the Association that colored illustrations should be paid for by the authors of papers.

Motion seconded.

The President.—This motion, I presume, will be in the nature of an amendment to the original motion by Dr. Hurd?

Dr. Hurd.—Yes.

The President.—I would like to say that it might have been better had the Treasurer's report been presented before this discussion took place. However, that will come later. The Chair feels, also, that the editors of the JOURNAL should be allowed to exercise certain discretion in matters of this sort, but I do believe that this discussion, following the report of the Treasurer, would have been briefer.

You have heard the amendment, what is your wish?

Carried.

THE PRESIDENT.—What will you do with the original motion by Dr. Hurd, as amended, to adopt the report of the Council?

Carried. The names proposed for election and transfer to come up to-morrow.

THE PRESIDENT.—We will now hear the report of the Treasurer.

REPORT OF TREASURER, 1914-1915.

DEBITS.

Balance on hand June 1, 1914	$3,216.56
Received for dues:	
Active members	1,985.00
Associate members	525.00
Advance dues	13.00
Interest on bank deposits	64.88
Gummed lists of members	9.00
Copy of Transactions	2.00
Refund on express bill (E. S. Graney)	.25
Subscription to the American Journal of Insanity	3.00
Discount	.45
Total	$5,819.14

CREDITS.

1914		
June 2.	A. P. Herring, Committee on Diversional Occupation (exhibit)	$155.00
2.	Lucas Bros., registry cards	4.25
3.	Henry P. Whalen, printing ballots	3.00
5.	Charles G. Wagner, telegrams and messenger service at Baltimore meeting	5.75
10.	Edward N. Brush, index account	50.00
10.	Margaret M. Bloxham, expenses as stenographer at annual meeting 1914	49.56
22.	Edward S. Graney, telegrams and express	5.03
July 1.	Henry M. Hurd, History account	168.30
2.	O. P. Chase, postage and carfare	4.10
11.	The Lord Baltimore Press, Transactions and list of members	1,000.00
Aug. 14.	Henry P. Whalen, stamped envelopes and printing	49.91
28.	Henry P. Whalen, printing bill-books	7.50

Sept. 3.	The Lord Baltimore Press, balance on acct.	$ 108.01
Oct. 6.	Edward N. Brush, subscription to American Journal of Insanity (Joseph W. Moore)	3.00
14.	Henry P. Whalen, printing circulars and envelopes	6.00
Dec. 24.	Clerical services	10.00
24.	Arthur F. Kilbourne, refund on gummed list	.50
29.	O. P. Chase, postage and carfare	2.08
1915		
Jan. 26.	Stamped envelopes	21.08
Feb. 10.	Henry M. Hurd, History account	179.11
25.	Margaret M. Bloxham, reporting and typewriting proceedings annual meeting 1914	100.00
Mar. 1.	Henry P. Whalen, printing preliminary program, applications, letters, etc.	36.75
18.	O. P. Chase, postage and carfare	30.15
Apr. 19.	E. S. Graney, telegrams	1.00
19.	Charles G. Wagner, telegrams, telephone, carfare and messenger	5.00
19.	Postage	8.00
24.	Henry P. Whalen, printing programs, envelopes, letters and notices	87.40
30.	Margaret M. Bloxham, services as stenographer, May, 1914, to May, 1915	100.00
30.	Protested check (Dr. Albert M. Cross)	2.00
30.	O. P. Chase, clerical services for year to May 10, 1915	35.00
May 5.	Henry M. Hurd, History account	296.38
	Balance on hand as follows:	
	City National Bank, Binghamton, N. Y.	1,866.42
	Emigrant Industrial Savings Bank	1,418.86
	Total	$5,819.14

Respectfully submitted,

May 7, 1915. CHARLES G. WAGNER, *Treasurer.*

THE PRESIDENT.—Unless there is objection, the report of the Treasurer will go to the Auditors.

THE PRESIDENT.—The next in order is the report of the Editors of the AMERICAN JOURNAL OF INSANITY, by Dr. Brush.

To the Members of the American Medico-Psychological Association, Gentlemen: I beg on behalf of the Editorial Board of the AMERICAN JOURNAL OF INSANITY to report that the JOURNAL is in a prosperous condition. The volume which has just closed, Volume 71, comprises over 800 pages, and the contents have been of unusual interest and have attracted in the way of notices and abstracts in other periodicals both at home and abroad more than usual attention.

Considering the fact that during the year we have paid for five numbers—including in this the extra number containing the addresses at the opening of the Henry Phipps Psychiatric Clinic—the financial status of the JOURNAL is good. Our receipts from advertisements have fallen off some, but the receipts from subscriptions have increased more than $400.

Notice had been repeatedly called to the expense entailed in the reproduction of illustrations sent with articles for publication and of tables which frequently form part of articles, the expense of composition of which is more than double the cost of typesetting for an ordinary page.

By vote of council last evening the editors were empowered to require from authors who wish illustrations the payment of a proportionate part of the cost of preparation of plates and the excess cost over ordinary composition for the composition of tables.

Authors should also remember that the cost of new material added to proof or of corrections other than ordinary correction of printer's errors is large, and see that their manuscripts are sent to the JOURNAL in the exact form they are to appear.

Attention is also again called to the fact that by resolution of the Association, papers read at its meetings are the property of the Association and cannot be published except by permission of the Council.

The editors are occasionally asked to waive this rule, which of course they cannot do, nor indeed have they any desire to do so. They are also asked to publish papers which have been, without permission of the Council, given publication elsewhere. This they have declined to do, as they do not desire to present matter which the JOURNAL has not been accorded the courtesy of priority of choice and publication. In this decision they believe the Association will support them.

The authors of papers are again urged to place their manuscripts at once in the hands of the Secretary—and those who discuss papers to read, correct, and at once return, the stenographic report of their remarks.

The editors often desire to publish with papers the reports of discussions—but, alas, are unable to do so by reason of the neglect and apparent indifference of those who should at once return the stenographic notes sent for their inspection.

I transmit herewith the vouchers showing the receipts and expenditures for the year.

Respectfully submitted,

EDWARD N. BRUSH.

THE PRESIDENT.—You have heard the report of the Editors of the JOURNAL.

DR. HENRY M. HURD.—I move it be accepted and the financial report referred to the Auditors.

Motion duly seconded and carried.

THE PRESIDINT.—I will call call for the report of the Committee on History of Institutional Care of the Insane in the United States and Canada, Dr. Hurd, chairman.

To the American Medico-Psychological Association: In behalf of the Committee on "The Institutional Care of the Insane in the United States and Canada," I would make the following report:

1. At the last meeting the committee recommended to the Council that authority be given to publish the first volume of the "History," as it was in a sufficient state of forwardness, but upon considering the whole situation it was found impossible to adequately describe the book or to give subscribers a definite idea of what expense they were to incur for the whole work. It accordingly seemed best to finish all the volumes so as to get estimates on the total cost of printing the same, before sending out circulars to such institutions, individuals and libraries as were likely to subscribe for copies.

The labor of compiling and completing the work has been very arduous, and there have been serious delays in securing material, but not as much as one would anticipate when it is remembered that the material must come from more than 50 states and dependencies in this country alone, and several hundred institutions.

2. The committee now has data respecting the work and can state definitely that it will comprise four volumes of about 500 pages each, corresponding in paper, typography and general appearance with the TRANSACTIONS as at present published, but differently bound and distinctively lettered.

3. Proposals for cost of printing have now been obtained from three large and responsible firms, who have bid upon the preparation of the same volume. The lowest bidder is the Lord Baltimore Press in the sum of $1146 per volume for an edition of 1000 copies of about 500 printed pages, bound in cloth and ready to deliver.

If illustrations are inserted, and they should be, the illustrations for each volume will cost about $240, provided there are 25 illustrations to each volume. The four volumes, of course, will altogether cost in the neighborhood of $5000. The committee would recommend that the price for the four volumes be fixed at $10, and that a discount of 20 per cent be given to members of the Association and to institutions represented by them, which will make the book cost $2 per volume. And that the committee be authorized to send out immediately a prospectus and circulars giving tables of contents and return postal cards widely, asking for subscriptions.

4. The committee would suggest that reprints of articles desired by authors of different histories be given at actual cost.

5. Also that authority be given the committee to begin publication at once, and that the remittances received may by used by the Treasurer to pay the expenses of publication so that the profits if any, may go to the Association to reimburse it for the expenses incurred.

The committee is to be congratulated on the fact that the work of compilation is nearly over, and that the material required to fill in gaps is comparatively small. It also desires to express very grateful appreciation for the cooperation and labor of those who have assisted in the preparation of the "History."

The chairman of the committee is aware that he has been a thorn in the flesh to many members of the Association by reason of his persistent and more or less constant importunities. He desires to apologize for this persistence and to say that there seemed no other manner in which he could obtain the desired histories.

The work of printing the first volume can go on systematically during the present Summer.

Very respectfully submitted,
Henry M. Hurd,
In Behalf of Committee.

Dr. Henry M. Hurd.—I move that this whole matter of publishing the "History" be referred to the Council, with power.

Motion duly seconded and carried.

Dr. C. B. Burr.—I think the Association should express its appreciation of the activity of the chairman of this committee.

The President.—Dr. Burr is right. This has been a tremendous amount of work and the committee has done its work well, evidence of which will be seen in the publication which will soon go forward. I am quite sure that I voice the sentiment of every member of the Association in expressing to the chairman of this committee our appreciation of his tremendous task, which he has done so very well indeed. [Applause.]

I now wish to announce the Nominating Committee, after which we will have a brief recess for the purpose of registration. This committee will consist of the following members:

Dr. Hubert Work, of Colorado; Dr. G. Alder Blumer, of Rhode Island, and Dr. Charles G. Hill, of Maryland.

Notice is given that owing to the absence of some of the writers, papers scheduled for this evening, not requiring lantern slides, will be presented this afternoon. There has also been an addition to the program for this evening in the nature of moving picture films; one will be provided by the management of the hotel, on the subject of hydrotherapeutics, and the other comes from the New York State hospitals for the insane. We will now have a recess for the purpose of registration.

The following members registered, and were in attendance during the whole or a part of the meeting:

Abbot, Florence Hale, M. D., Assistant Physician Dr. Mellus' Private Hospital, Newton, Mass.

Allen, J. Berton, M. D., Assistant Physician State Hospital, Central Islip, N. Y.

Allen, H. D., M. D., Superintendent Allen's Invalid Home, Milledgeville, Ga.

Anderson, Albert, M. D., Superintendent Dix Hill State Hospital, Raleigh, N. C.

Anderson, Paul V., M. D., Resident Physician Westbrook Sanatorium, Richmond, Va.

Applegate, C. F., M. D., Superintendent Mt. Pleasant State Hospital, Mt. Pleasant, Ia.

Baber, Armitage, M. D., Superintendent Dayton State Hospital, Dayton, O.

Bancroft, Charles P., M. D., Superintendent New Hampshire State Hospital, Concord, N. H.

Barlow, Charles A., M. D., Superintendent Spencer State Hospital, Spencer, W. Va.

Bernstein, Charles, M. D., Superintendent Rome State Custodial Asylum, Rome, N. Y.

Blumer, G. Alder, M. D., Medical Superintendent Butler Hospital, Providence, R. I.

Brooks, Swepson J., Physician-in-Charge St. Vincent's Retreat, Harrison, Washington Co., N. Y.

Brown, Sanger, M. D., Physician-in-Charge Kenilworth Sanitarium, Kenilworth, Ill.

Brown, G. W., M. D., Superintendent Eastern State Hospital, Williamsburg, Va.

Brush, Edward N., M. D., Physician-in-Chief and Superintendent Sheppard and Enoch Pratt Hospital, Towson, Md.

Buchanan, J. M., M. D., Superintendent East Mississippi Insane Hospital, Meridian, Miss.

Burr, C. B., M. D., Medical Director Oak Grove Hospital, Flint, Mich.

Burgess, T. J. W., M. D., Medical Superintendent Protestant Hospital for the Insane, Box 2280, Montreal, Que., Canada.

Carey, H. M., M. D., Odessa, Del.

Clark, J. Clement, M. D., Superintendent Springfield State Hospital, Sykesville, Md.

Cornell, Wm. B., M. D., Executive Secretary Mental Hygiene Committee, 401 Garrett Building, Baltimore, Md.

Cotton, Henry A., M. D., Medical Director New Jersey State Hospital, Trenton, N. J.

Cozad, H. Irving, M. D., Clinical Director Fair Oaks Villa, Cuyahoga Falls, O.

Crumbacker, W. P., M. D., Superintendent Independence State Hospital, Independence, Ia.

Darling, Ira A., M. D., Assistant Physician Warren State Hospital, Warren, Pa.

Dewey, Richard, M. D., Physician-in-Charge Milwaukee Sanitarium, Wauwatosa, Wis.

Dold, Wm. Elliott, M. D., Physician-in-Charge River Crest Sanitarium, Astoria, L. I., N. Y. C.

Drewry, Wm. F., M. D., Superintendent Central State Hospital, Petersburg, Pa.

Dunton, Wm. Rush, Jr., M. D., Assistant Physician Sheppard and Enoch Pratt Hospital, Towson, Md.

Emerson, Ernest B., M. D., Medical Director Bridgewater State Hospital, State Farm, Mass.

Evans, Britton D., M. D., Medical Director The New Jersey State Hospital at Morris Plains, Greystone Park, N. J.

Eyman, H. C., M. D., Superintendent Massillon State Hospital, Massillon, O.

Faison, W. W., M. D., Superintendent State Hospital, Goldsboro, N. C.

Ferris, Albert Warren, M. D., Saratoga Springs, N. Y.

Fordyce, O. O., M. D., Superintendent Athens State Hospital, Athens, O.

Forster, J. M., M. D., Medical Superintendent Hospital for Insane, Toronto, Ont., Canada.

Frost, Henry P., M. D., Superintendent Boston State Hospital, Dorchester Centre, Mass.

Fuller, Daniel H., M. D., Senior Assistant Physician Pennsylvania Hospital for Insane, Philadelphia, Pa.

Garlick, James H., M. D., First Assistant Physician Western State Hospital, Staunton, Va.

Gilliam, Charles F., M. D., Superintendent Columbus State Hospital, Columbus, O.

Gillis, A. C., M. D., Neurologist Mercy Hospital, 914 N. Charles St., Baltimore, Md.

Givens, Amos J., M. D., Proprietor and Superintendent Givens Sanitarium, Stamford, Conn.

Gregg, Donald, M. D., Associate Physician Channing Sanitarium, Brookline, Mass.

Green, Edward M., M. D., Clinical Director Georgia State Sanitarium, Milledgeville, Ga.

Gundry, Alfred T., M. D., Medical Director Gundry Sanitarium, Catonsville, Md.

Gundry, Richard F., M. D., Medical Director The Richard Gundry Home, Catonsville, Md.

Guthrie, L. V., M. D., Superintendent Huntington State Hospital, Huntington, W. Va.

Hall, James K., M. D., Medical Superintendent Westbrook Sanatorium, Richmond, Va.

Hancker, Wm. H., M. D., Medical Superintendent Delaware State Hospital, Farnhurst, Del.

Harrington, Arthur H., M. D., Superintendent State Hospital for the Insane, Howard, R. I.

Harding, George Tryon, Jr., M. D., 318 E. State St., Columbus, O.

Hasking, A. P., M. D., Official Examiner Hudson Co., N. J., Indigent Insane, Court House, Jersey City, N. J.

Haviland, C. Floyd, M. D., First Assistant Physician Kings Park State Hospital, Kings Park, N. Y.

Herring, A. P., M. D., Secretary State Lunacy Commission, 330 North Charles St., Baltimore, Md.

Henry, H. C., M. D., Assistant Physician Central State Hospital, Petersburg, Va.

Heyman, M. B., M. D., Assistant Superintendent Central Islip State Hospital, Central Islip, N. Y.

Hill, Charles G., M. D., Physician-in-Chief Mt. Hope Retreat, Baltimore, Md.

Hills, Frederick L., M. D., Superintendent Bangor State Hospital, Bangor, Me.

Hobbs, A. T., M. D., Medical Superintendent Homewood Sanitarium, Guelph, Ont., Canada.

Houston, John A., M. D., Superintendent Northampton State Hospital, Northampton, Mass.

Hurd, Arthur W., M. D., Superintendent Buffalo State Hospital, Buffalo, N. Y.

Hurd, Henry M., M. D., Secretary Trustees Johns Hopkins Hospital, 1210 Fidelity Building, Baltimore, Md.

Jones, L. M., M. D., Superintendent Georgia State Sanitarium, Milledgeville, Ga.

Kelly, Wm. E., M. D., Assistant Physician Middletown State Homeopathic Hospital, Middletown, N. Y.

Kineon, George G., M. D., Superintendent Ohio Hospital for Epileptics, Gallipolis, O.

King, George, M. D., County Physician, 239 Second St., Jersey City, N. J.

Kline, George M., M. D., Superintendent Danvers State Hospital, Hathorne, Mass.

Klopp, Henry I., M. D., Superintendent and Physician Homeopathic State Hospital, Allentown, Pa.

La Moure, Charles T., M. D., Superintendent Connecticut School for Imbeciles, Lakeville, Conn.

Lang, Walter E., M. D., Senior Assistant Physician Homeopathic State Hospital, Allentown, Pa.

Langdon, F. W., M. D., Medical Director Cincinnati Sanitarium, Box 4, College Hill, Cincinnati, O.

Lewis, J. M., M. D., Cleveland, O.

Long, T. L., M. D., Assistant Physician Cherokee State Hospital, Cherokee, Ia.

Mabon, William, M. D., Medical Superintendent Manhattan State Hospital, Wards Island, New York City.

MacDonald, Carlos F., M. D., Physician-in-Charge Dr. MacDonald's House, Central Valley, N. Y.

Mayer, Edward E., M. D., Keenan Building, Pittsburgh, Pa.

McKinniss, C. R., M. D., Medical Director and Superintendent Pittsburgh City Hospital, Boyce, Pa.

Meredith, H. B., M. D., Superintendent and Physician State Hospital for the Insane, Danville, Pa.

Mitchell, H. W., M. D., Superintendent State Hospital for the Insane, Warren, Pa.

Moore, J. W., M. D., First Assistant Physician Matteawan State Hospital, Beacon, N. Y.

Mullan, E. H., M. D., U. S. Public Health Service, Ellis Island, N. Y.

Murphy, Wm. A., M. D., Clinical Director Goldsboro State Hospital, Goldsboro, N. C.

Nevin, John, M. D., Jersey City, N. J.

Nevin, Ethan A., M. D., Superintendent State Custodial Asylum, Newark, N. Y.

Newcomb, Philip B., M. D., Clinical Director State Hospital, Osawatomie, Kans.

Nichols, John H., M. D., Superintendent and Resident Physician State Infirmary, Tewksbury, Mass.

O'Harrow, Marian, M. D., Assistant Physician Friends' Hospital, Frankford, Philadelphia, Pa.

O'Malley, Mary, M. D., Senior Assistant Physician Government Hospital for the Insane, Washington, D. C.

Orton, Samuel T., M. D., Clinical Director and Pathologist Pennsylvania Hospital for the Insane, Philadelphia, Pa.

Palmer, H. L., M. D., Superintendent Utica State Hospital, Utica, N. Y.

Payne, Guy, M. D., Medical Superintendent Essex Co. Hospital, Cedar Grove, N. J.

Peterson, Jessie M., M. D., Chief Resident Physician Department for Women, State Hospital for Insane, Norristown, Pa.

Price, Susan A., M. D., Assistant Physician Eastern State Hospital, Williamsburg, Va.

Purdum, H. D., M. D., Springfield State Hospital, Sykesville, Md.

Ricksher, Charles, M. D., Pathologist State Psychopathic Institute, Kankakee, Ill.

Ridgway, R. F. L., M. D., First Assistant Physician Pennsylvania State Lunatic Hospital, Harrisburg, Pa.

Ripley, Horace G., M. D., Assistant Superintendent Taunton State Hospital, Taunton, Mass.

Rosanoff, A. J., M. D., First Assistant Physician Kings Park State Hospital, Kings Park, N. Y.

Ross, Donald L., M. D., Superintendent Connecticut Colony for Epileptics, Mansfield Depot, Conn.

Russell, Wm. L., M. D., Medical Superintendent Bloomingdale Hospital, White Plains, N. Y.

Sargent, G. F., M. D., Assistant Physician Sheppard and Enoch Pratt Hospital, Towson, Md.

Scanland, J. M., M. D., Superintendent Montana State Hospital, Warm Springs, Mont.

Scheetz, Mildred E., M. D., Government Hospital for the Insane, Washington, D. C.

Scribner, Ernest V., M. D., Medical Superintendent Worcester State Hospital, Worcester, Mass.

Searcy, J. T., M. D., Superintendent Alabama Insane Hospitals, Tuscaloosa, Ala.

Shanahan, Wm. T., M. D., Superintendent Craig Colony, Sonyea, N. Y.

Shaw, Arthur L., M. D., Assistant Physician Craig Colony for Epileptics, Sonyea, N. Y.

Smith, Samuel Edwin, M. D., Medical Superintendent Eastern Indiana Hospital for the Insane, Richmond, Ind.

Smith, R. W. Bruce, M. D., Inspector of Hospitals, Toronto, Ont.

Southard, E. E., M. D., Director Psychopathic Hospital and Pathologist State Board of Insanity, 74 Fenwood Road, Boston, Mass.

Stearns, Albert Warren, M. D., Massachusetts State Board of Insanity, 520 Commonwealth Ave., Boston, Mass.

Stevenson, W. W., M. D., Assistant Physician New Jersey State Hospital, Trenton, N. J.

Stick, H. Louis, M. D., Superintendent and Treasurer Grafton State Hospital, Box 1178, Worcester, Mass.

Swift, Walter B., M. D., 110 Bay State Road, Boston, Mass.

Terflinger, F. W., M. D., Medical Superintendent Northern Hospital for the Insane, Logansport, Ind.

Thom, Douglas A., M. D., Pathologist Monson State Hospital, Palmer, Mass.

Thompson, Charles E., M. D., Superintendent Gardner State Colony, Gardner, Mass.

Thorne, Frederic H., M. D., Pathologist New Jersey State Hospital, Morris Plains, N. J.

Torney, George H., M. D., Associate Physician Bournewood Hospital, South St., Brookline, Mass.

Tuttle, George T., M. D., Medical Superintendent McLean Hospital, Waverley, Mass.

Tyson, Forrest C., M. D., Superintendent Augusta State Hospital, Augusta, Me.

Van Nuys, W. C., M. D., Superintendent Indiana Village for Epileptics, Newcastle, Ind.

Wade, J. Percy, M. D., Medical Superintendent Spring Grove State Hospital, Catonsville, Md.

Wagner, Charles G., M. D., Medical Superintendent Binghamton State Hospital, Binghamton, N. Y.

Walker, Lewis M., M. D., First Assistant Physician Medfield State Hospital, Harding, Mass.

Wardner, Drew, M. D., Assistant Physician Essex Co. Hospital, Cedar Grove, N. J.

Weeks, David F., M. D., Superintendent New Jersey State Village for Epileptics, Skillman, N. J.

Weston, Paul G., M. D., Pathologist State Hospital, Warren, Pa.

White, Wm. A., M. D., Superintendent Government Hospital for the Insane, Washington, D. C.

Wilsey, O. J., M. D., Physician-in-Charge Long Island Home, Amityville, L. I.

Wilson, Anita Alvera, M. D., Assistant Physician Government Hospital for the Insane, Washington, D. C.

Work, Hubert, M. D., Superintendent Woodcroft Hospital, Pueblo, Colo.

Yarbrough, Y. H., M. D., Assistant Physician Georgia State Sanitarium, Milledgeville, Ga.

Young, Ernest H., M. D., Assistant Superintendent Rockwood Hospital, Kingston, Ont., Canada.

The following visitors and guests of the Association registered their names with the Secretary:

Anderson, Mrs. Albert, Raleigh, N. C.

Atkinson, Gordon I., Member Board of Managers Spring Grove State Hospital, Catonsville, Md.

Ball, Nellie F., Clerk State Board of Insanity, Boston, Mass.

Barlow, Mrs. Chas. A., Spencer, W. Va.

Berry, Mrs. Roxie I., Superintendent of Nurses Virginia State Epileptic Colony, Madison Heights, Va.

Bohannan, J. Gordon, Member Board of Directors Virginia Hospitals, Petersburg, Va.

Bohannan, Mrs. J. Gordon, Petersburg, Va.

Brent, M. S., M. D., Assistant Physician Central State Hospital, Petersburg, Va.

Brush, Mrs. Edward N., Towson, Md.

Brown, Mrs. G. W., Williamsburg, Va.

Brown, Miss Louise, Madison Heights, Va.

Buchanan, Mrs. J. M., Meridian, Miss.

Burgess, Mrs. T. J. W., Montreal, Que., Canada.

Butler, Amos W., Secretary Indiana Board of State Charities, Indianapolis, Ind.

Carleton, B. L., M. D., Assistant Physician Central State Hospital, Petersburg, Va.

Cornell, Mrs. W. B., Baltimore, Md.

Crumbacker, Mrs. W. P., Independence, Ia.

Drewry, Mrs. W. F., Petersburg, Va.

Eckhardt, John Carl, M. D., Assistant Physician Central State Hospital, Petersburg, Va.

Epstein, M., Treasurer Board of Trustees Northern Hospital for the Insane, Logansport, Ind.

Evans, Albert, M. D., Trustee Medfield State Hospital, 409 Marlboro St., Boston, Mass.

Evans, Mrs. B. D., Greystone Park, N. J.

Forster, Mrs. J. M., Toronto, Ont., Canada.

Freeman, Douglas S., Richmond, Va.

Freeman, Mrs. Douglas S., Richmond, Va.

Frink, H. W., M. D., Chief of Neurological Clinic, Cornell Dispensary, 17 East 38th St., New York City.

Gamble, C. W., Mt. Morris, N. Y.

Gilliam, Robert, Chairman Board of Directors, Petersburg, Va.

Greene, Ralph N., M. D., Chief Physician Florida State Hospital, Chattahoochee, Fla.

Guthrie, Mrs. Margaret Lynn, Huntington, W. Va.

Haines, Emily L., Director of Industries State Board of Insanity, Boston, Mass.

Halterman, Charles W., M. D., Superintendent Weston State Hospital, Weston, W. Va.

Haviland, Mrs. C. Floyd, Kings Park, N. Y.

Houston, Harry R., Hampton, Va.

Hudgings, Mrs. Edward, Chase City, Va.

Johnson, J. E., American Laundry Machinery Co., Cincinnati, O.

Jones, Mrs. L. M., Milledgeville, Ga.

Kline, Mrs. Geo. M., Hathorne, Mass.

Klopp, Mrs. Henry I., Allentown, Pa.

La Moure, Mrs. Chas. T., Lakeville, Conn.

Lang, Mrs. Walter E., Allentown, Pa.

McCarthy, Rev. W. B., Resident Chaplain Craig Colony, Sonyea, N. Y.

McCarty, Chas. W., American Laundry Machinery Co., 132 W. 27th St., New York City.

McCullough, Mrs. F. F., Huntington, W. Va.

Miller, Mrs. George F., Huntington, W. Va.

Moody, Ray M., M. D., Assistant Physician Middletown State Hospital, Middletown, N. Y.

Moosbrugger, Herman F., President New Jersey State Village for Epileptics, Skillman, N. J.

Nevin, Mrs. John, Jersey City, N. J.

Old, Donathan W., M. D., Norfolk, Va.

Osborne, Mrs. C. A., Keysville, Va.

Parker, G. C., Norfolk, Va.

Pruden, A. A., Major and Chaplain U. S. Army, Fortress Monroe, Va.

Roe, Miss Margaret, Teacher Eastern State Hospital, Williamsburg, Va.

Rosanoff, Mrs. A. J., Kings Park, N. Y.

Shiftlett, Miss, Superintendent of Nurses Southwestern State Hospital, Marion, Va.

Smith, Mrs. R. W. Bruce, Toronto, Ont., Canada.

Smith, Mrs. Samuel E., Richmond, Ind.

Sommer, H. J., M. D., Medical Superintendent Blair Co. Hospital for the Insane, Hollidaysburg, Pa.

Stearns, Mrs. A. W., Boston, Mass.

Terflinger, Mrs. F. W., Logansport, Ind.

Thompson, Mrs. Chas. E., Gardner, Mass.

Tuttle, Mrs. George T., Waverley, Mass.

Walker, Mrs. Gerna Saville, Social Worker Medfield State Hospital, Harding, Mass.

Weeks, Mrs. David F., Skillman, N. J.

Williams, C. F., M. D., Superintendent State Hospital for the Insane, Columbia, S. C.

Williams, Frankwood E., M. D., Executive Secretary Massachusetts Society for Mental Hygiene, Boston, Mass.

Wilsey, Mrs. O. J., Amityville, L. I., N. Y.

THE PRESIDENT.—The meeting will please come to order. I wish to call your attention to the fact that ten of our members have passed away during the year, and in their memory I will ask you to kindly stand while their names are read by the Secretary, and then a brief prayer will be offered by Major Pruden, of Fortress Monroe, Va.

The Secretary read the following memorial notices by title:

Dr. R. J. Dysart, by Adin Sherman, M. D.; Dr. Brooks F. Beebe, by F. W. Langdon, M. D.; Dr. Wm. B. Moseley, by Elbert M. Somers, M. D.; Dr. Samuel F. Mellen, by Willis E. Merriman, M. D.; Dr. Oscar R. Long, by Henry M. Hurd, M. D.; Dr. Wesley Mills, by Charles K. Clarke, M. D.; Dr. D'Orsay Hecht, by Sanger Brown, M. D.; Dr. H. Walton Wood, by Henry A. Cotton, M. D.; Dr. Henry Smith Noble, by Charles E. Stanley, M. D.; Dr. Theodore W. Fisher, by Walter Channing, M. D.

Major Pruden then offered a brief prayer.

THE PRESIDENT.—I desire to announce that the exhibit of the Committee on Diversional Occupation is now ready for inspection, and may be found in the palm-room. In this connection also I wish to announce the appointment of the committee having in charge the awards of this exhibit, as follows:

Dr. Charles Ricksher, of Illinois; Dr. Edward M. Greene, of Georgia, and Dr. Frederick L. Hills, of Maine.

The constitution requires that the President shall deliver an inaugural address. I would ask Dr. Brush, the Vice-President, to take the Chair.

The President of the Association, Dr. Samuel E. Smith, read his address, "The Relation of Psychiatry to the State," which was greeted with applause.

DR. HENRY M. HURD.—We certainly are indebted to the President for this excellent address; it covers a wide field for thought; his suggestions are extensive, practical, and are such that I believe we should all act upon them. I move a vote of thanks.

Motion seconded.

DR. BRUSH (presiding).—It has been moved and seconded that a vote of thanks be extended to the President for his excellent address. I shall ask for a standing vote.

Motion unanimously carried.

Dr. Brush.—I take great pleasure in extending to you, Mr. President, on behalf of this Association, its cordial thanks for your address. We realize that you come from a state toward which the center of literary activity is moving; we believe you come from a state concerning which one might say in paraphrasing certain familiar lines that it—

> " Counts that day lost whose low descending sun
> Sees no new novel writ, no fresh romance begun."

But we do not believe that you have presented to us this noon a romance; we believe that you have brought us the result of your years of work and observation and study, and that you have given us very much food for thought. I take very great pleasure, therefore, in extending to you the thanks of the Association.

The President.—I thank you very much for your kind expressions.

Adjournment.

Afternoon Session.

The President.—The meeting will please come to order. We will proceed with the reading of papers. I will ask Dr. H. G. Eyman, of Massillon, O., to read his paper.

Dr. Eyman read his paper entitled " Institutional Stasis." Discussed by Dr. Burgess.

Dr. Wm. A. White.—I think that practically all of the members of the Association here are cognizant of the difficulty at the New Hampshire State Hospital some months ago, which resulted in the removal of Dr. Bancroft. At the time when that trouble was at its height the Governor of New Hampshire was bombarded with all sorts of letters protesting against his contemplated act. Dr. Bancroft informed me this morning that he had been reinstated by the present Governor. Such an act is absolutely in harmony with everything this Association has ever stood for, and I do not think we should limit ourselves to criticising acts that we do not approve of, but that we should be just as ready to commend actions that we do approve of, and with that end in view I am going to offer a motion that the following resolution be adopted by the Association:

Resolved, That this Association desires to express to His Excellency, Hon. Rolland H. Spaulding, Governor of New Hampshire, its appreciation of his action in reinstating Dr. Charles P. Bancroft as superintendent of the New Hampshire State Hospital at Concord, as a just recognition of his highly valuable services in the scientific care and treatment of the insane, and as an official recognition of the error that was committed when he was removed from the office which he had filled with conspicuous ability for many years.

DR. H. W. MITCHELL.—As a native of New Hampshire and a friend of Dr. Bancroft, I wish to second that motion.

THE PRESIDENT.—You have heard the motion of Dr. White—what is your wish?

Motion unanimously carried.

THE PRESIDENT.—I wish to state that it is advisable to add to the committee the Chair appointed this morning on awards, the names of two ladies. I am gradually losing faith in the judgment of the members of the committee, and I believe it would be of great assistance to them if I named these ladies: Mrs. T. J. W. Burgess, of Montreal, and Mrs. Richard F. Gundry, of Catonsville, Md.

I am informed that Dr. May is unable to be present, and requests that his paper entitled "Some of the More Recent Problems Connected with State Care of the Insane," be read by title.

As an addition to the program, we have a paper by Dr. Richard Dewey. I will ask Dr. Dewey to read his paper at this time.

The following papers were then read:

"The Evolution of Detached Wards (so-called 'cottages') for the Insane," by Richard Dewey, M. D., Wauwatosa, Wis.

"Recent Extension of Out-patient Work in the Massachusetts State Hospitals for the Insane and Feeble-Minded," by L. Vernon Briggs, M. D., and A. Warren Stearns, M. D., Boston, Mass., read by Dr. Stearns. Discussed by Drs. Houston, Burr and Dr. Stearns in closing.

"Some Practical Tasks in Mental Hygiene," by Thomas W. Salmon, M. D., New York, N. Y. (By title.)

"Recidivation in Insanity, With Considerations on Classifications," by George Villeneuve, M. D., Montreal, Que. (By title.)

THE PRESIDENT.—That brings our program up to the hour. If there is no further business we will adjourn and meet again promptly at 8.30 this evening.

Adjournment.

At 4 p. m., by courtesy of the Commanding Officer of Fortress Monroe, a visit was paid to the coast batteries and parade ground, where a regimental parade was witnessed. Cars were provided by the Committee of Arrangements to convey the members and their friends to and from the Fort.

EVENING SESSION.

THE PRESIDENT.—The Association will please come to order. The first thing on the program is a paper by Dr. Ferris, which we will hear at this time.

The following papers were read:

" State Ownership of the Springs of Saratoga and State Control in Developing and Utilizing their Facilities," by Albert Warren Ferris, M. D., Saratoga Springs, N. Y. (Illustrated by colored stereopticon slides.)

" A Further Study of Brain Anatomy in Manic Depressive Psychoses," by E. E. Southard, M. D., Boston, Mass. (Illustrated by lantern slides.)

" Anatomical Researches, Massachusetts School for Feeble-Minded," by Walter E. Fernald, M. D., Waverley, Mass., E. E. Southard, M. D., Boston, Mass., and A. E. Taft, M. D., Cambridge, Mass. Read by Dr. Southard. (Illustrated by lantern slides.)

THE PRESIDENT.—The management of the hotel has asked permission to have Dr. Russell give a lecture before the Association on the subject of Hydrotherapy, which we will be pleased to hear now.

Dr. Russell presented a moving picture film showing the Nauheim and other baths in operation at the hotel.

THE PRESIDENT.—The next in order will be a film showing scenes at the Binghamton State Hospital, with explanatory remarks by Dr. Wagner.

Dr. Charles G. Wagner, of Binghamton, N. Y., presented a motion picture film showing diversions, occupations, etc., in New York State hospitals for the insane, prepared under the direction of the State Hospital Commission of New York State, most of which were taken at the Binghamton State Hospital. A duplicate of this reel is being used daily at the Panama-Pacific Exposition in San Francisco at the present time.

On motion the meeting adjourned.

WEDNESDAY, MAY 12, 1915, 10 A. M.

THE PRESIDENT.—The first in order is the report of the Council.

REPORT OF THE COUNCIL FOR MAY 11, 1915.

The Council recommends the election of the following named physicians to the associate class: Inez A. Bentley, M. D., Kings Park, N. Y.; Harriet F. Coffin, M. D., Kings Park, N. Y.; Frederick C. Devendorf, M. D., Beacon, N. Y.; Pearl T. Haskell, M. D., Bangor, Me.; Thomas D. Macdonald, M. D., Central Valley, N. Y.; Susan A. Price, M. D., Williamsburg, Va.; Mildred E. Scheetz, M. D., Washington, D. C.; George A. Sharp, M. D., Beacon, N. Y.; Henry G. Smith, M. D., Cedar Grove, N. J.

The Council has received the following applications for active membership. In accordance with the constitution, final action will be deferred until next year: Ralph N. Greene, M. D., Chattahoochee, Fla.; Henry J. Sommer, M. D., Hollidaysburg, Pa.; W. K. Walker, M. D. Pittsburgh, Pa.

Respectfully submitted,

CHARLES G. WAGNER, *Secretary.*

On motion, duly seconded, the report of the Council was accepted and adopted.

THE PRESIDENT.—The next order of business is the election of new members and the transfer from associate to active membership, as recommended in the report of the Council yesterday. Do you wish to have the Secretary again read the names?

DR. BURR.—I move the reading be omitted.

Motion duly seconded and carried.

(This list is given in the first report of the Council.)

DR. EYMAN.—I move that the Secretary be authorized to cast the ballot as printed, electing these physicians to active and associate membership.

Motion duly seconded and carried.

THE PRESIDENT.—The Secretary has cast the ballot of the Association and these members are duly elected.

We will now hear the report of the Nominating Committee, Dr. Work, Chairman.

The Nominating Committee made the following report:

For President, Edward N. Brush, M. D., Towson, Md.

For Vice-President, Charles G. Wagner, M. D., Binghamton, N. Y.

For Secretary-Treasurer, H. C. Eyman, M. D., Massillon, O.

For Councilors for three years: S. E. Smith, M. D., Richmond, Ind.; Charles P. Bancroft, M. D., Concord, N. H.; Arthur P. Herring, M. D., Baltimore, Md.; J. M. Forster, M. D., Toronto, Ont.

For Auditor for three years, A. S. Priddy, M. D., Madison Heights, Va.

For Auditor (in place of Dr. H. C. Eyman), C. E. Laughlin, M. D., Evansville, Ind.

Respectfully submitted,

HUBERT WORK,
G. ALDER BLUMER,
CHARLES G. HILL,
Committee.

DR. WORK.—I move you that the gentlemen named be made the officers of this Association for the time for which they are named.

THE PRESIDENT.—The Association has heard the report of the Nominating Committee, having named officers for the ensuing year, and the motion of the Chairman that the report be approved. All in favor please signify by saying aye; opposed, no.

Carried.

On motion, duly seconded and carried, the Secretary was instructed to cast a ballot for the gentlemen named as the officers of the Association for the ensuing year.

THE PRESIDENT.—The next in order is the report of the Auditors.

The Auditors beg to report as follows: Accounts and vouchers of Treasurer examined. All vouchers properly receipted and all accounts correct and in good form; bank books examined and balances found to be in harmony with Treasurer's report.

Accounts of managing editor of AMERICAN JOURNAL OF INSANITY examined, and all vouchers found properly receipted, and accounts correct.

Respectfully submitted,

H. C. EYMAN,
M. B. HEYMAN,
Auditors.

May 12, 1915.

DR. WM. A. WHITE.—I move the report of the Auditors be received and approved.

Motion duly seconded and carried.

THE PRESIDENT.—As it is the duty of the Chair to appoint a Committee on Resolutions, I will appoint the following members: Dr. Arthur W. Hurd, Buffalo, N. Y.; Dr. R. W. Bruce Smith, Toronto, Ont.; Dr. W. P. Crumbacker, Independence, Ia.

The next order of business is the report of the Committee on Psychology in Medical Schools.

DR. WM. A. WHITE.—The chairman of the committee, Dr. Abbot, is not prepared to make a report this year; he probably will be next year.

The President.—As the committee has no report to submit, that committee will be continued throughout the coming year.

We will now proceed to the reading of papers.

The following papers were read:

" Methods of Promoting the Nutrition in the Psychoses," by Sanger Brown, M. D., Kenilworth, Ill. Discussed by Drs. Hill, Hurd and Brown in closing.

" The Value of Routine Laboratory Work in Psychiatry," by Paul G. Weston, M. D., and Ira A. Darling, M. D., Warren, Pa.

The President.—In view of the short time at our disposal this morning, I will, with the approval of the reader of this paper, postpone the discussion until we have heard the other papers on the program, and let these papers come in the same discussion.

The following papers were read:

" The Dementia Præcox Problem," by Henry A. Cotton, M. D., Trenton, N. J. Discussed by Drs. White, Work, Evans, Southard, Mitchell and Cotton.

" The Relation of Angular Gyrus Lesions to Catatonia," by E. E. Southard, M. D., and M. M. Canavan, M. D., Boston, Mass.

" The Treatment of Paresis," by Britton D. Evans, M. D., and Frederic H. Thorne, M. D., Morris Plains, N. J.

The President.—With the consent of the members and in view of the lateness of the hour, we will omit discussion of Dr. Evans' paper until to-morrow, when we will hear a paper on a similar subject by Dr. Wardner. We will be obliged to adjourn now in order to make the boat at 2 o'clock.

On motion the meeting adjourned.

Afternoon Session.

At 2.30 p. m. the members of the Association and their friends enjoyed a ride on Hampton Roads on the boat *Endeavor*. Among the points of historic interest passed during the trip were the Rip Raps, the site of the naval battle between the *Monitor* and the *Merrimac,* the National Soldiers' Home, etc. By courtesy of Mr. Palen, Assistant General Manager of the Newport News Shipyard, a 30 minute stop was made to see that great plant, and the battleship *Vermont* was also visited by some of the party. A luncheon was served on board the boat and a chorus of colored singers sang Southern melodies. A most enjoyable afternoon was spent, the party returning at 7 p. m.

EVENING SESSION.

THE PRESIDENT.—We are assembled this evening to hear the annual address, and we are fortunate indeed that we have with us for the purpose of addressing us a distinguished and cultured gentleman of the Old Dominion, a journalist, publicist, a man who has taken an active and important interest in the public health of the state and community, who has had much to do with the advancing of ideas in the matter of the care of the unfortunates of this state, in that he has given special attention to this subject; he has also given special attention to many subjects, and I am sure that he will address us interestingly and instructively this evening. It affords me very great pleasure to introduce to you Dr. Douglas Southall Freeman, of Richmond, Virginia.

Dr. Freeman then delivered his address "Publicity and the Public Mind," which was greeted with applause.

DR. BLUMER.—*Mr. President, Ladies and Gentlemen:* There are times when even an inferior psychologist may interpret the psychology of a crowd without the aid of a newspaper and without knowing anything about them, and this is one of those times. Now, notwithstanding the restraint imposed by courtesy and conventions, we have all of us, I think, experienced a pressure to speech as this gentleman has been talking, and the words coming to our lips have been, on the part of the men, "Gee whiz!" and on the part of the ladies, "Isn't he perfectly lovely?" I have heard a great many addresses before this society, and I do not remember any that I have listened to with greater pleasure than the address I have just listened to by Dr. Freeman. It has been entertaining in style and altogether a delightful occasion. I therefore rise, Mr. President, as the spokesman of this audience, to offer to Dr. Freeman a very hearty vote of thanks for the great treat that he has given us.

THE PRESIDENT.—As a further expression of appreciation for this excellent address, I will ask the members of the Association and guests to rise.

Motion unanimously carried.

THE PRESIDENT.—This session will now adjourn, and if you will kindly gather in the drawing-room we will there have the pleasure of meeting Dr. and Mrs. Freeman personally.

Adjournment.

Following adjournment the members and guests of the Association assembled in the drawing-room where a reception was held, after which the management of the hotel furnished music for dancing in the ball-room, and refreshments were served.

THURSDAY, MAY 13, 1915, 10 A. M.

THE PRESIDENT.—The Association will please come to order. The first in order will be the report of the Council by the Secretary.

REPORT OF THE COUNCIL FOR MAY 12, 1915.

The Council recommends that the following named physicians be elected to associate membership: Ray M. Babbitt, M. D., Huntington, W. Va., and W. W. Stevenson, M. D., Trenton, N. J.

The Council has received the application for active membership of Sara E. Stevens, M. D., West Roxbury, Mass. According to the constitution, final action will be deferred until next year.

The Council recommends that the annual meeting of this Association for 1916 be held in New Orleans, La., and that the time of the meeting be left discretionary with the President and the Committee of Arrangements, to be announced later.

Respectfully submitted,

CHARLES G. WAGNER, *Secretary.*

DR. C. B. BURR.—I move the report of the Council be approved.

Motion duly seconded and carried.

THE PRESIDENT.—The next order of business is the election of members proposed yesterday. The Secretary will read the names.

(This list is given in the report of the Council for Tuesday.)

DR. C. B. BURR.—I move the Secretary be instructed to cast the ballot of the Association for the election of the physicians named to associate membership.

Motion duly seconded and carried.

THE PRESIDENT.—The Secretary has cast the ballot as instructed, and these physicians are duly elected members of the Association.

We are now ready to resume the reading of papers. We will first hear a paper left over from yesterday, by Dr. Drew M. Wardner.

Dr. Wardner read a paper entitled "The Intra-Cranial Injection of Salvarsanized Serum."

THE PRESIDENT.—You have before you now two papers for discussion: the one just read by Dr. Wardner, and the paper read yesterday by Dr. Evans.

These papers were discussed by Drs. Burr, Swift, Thorne, Paine and Wardner.

THE PRESIDENT.—I may say that the paper submitted by Dr. Wardner last year, upon this subject, was followed up for this year at my request following a brief visit which I had made to the institution at Cedar Grove. We are certainly very glad to have this report continued, and it will be interesting to have further report of these particular cases at another time.

The next in order will be the report of the Committee on Diversional Occupation of the Insane, by Dr. A. P. Herring, Chairman.

REPORT OF THE COMMITTEE ON DIVERSIONAL OCCUPATION OF THE INSANE TO THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION, MAY, 1915.

Mr. President and Gentlemen: Your Committee on the Diversional Occupation of the Insane begs leave to submit a brief report of its activities, and would call special attention to the very interesting exhibit which is presented for your study.

The exhibit this year, which is the fourth one, is a very marked advance over the exhibit held at Atlantic City in 1912, with about six institutions participating. In 1913 there were 12, and in 1914 there were 14 institutions represented, while the present exhibit is represented by 34 hospitals, presenting a more practical and varied array of industries than ever before. Surely we should feel encouraged with the growing interest the members are manifesting in the work of this committee.

In the report of the committee for 1913, a map of the United States was presented, showing the number of state, private and corporate hospitals where diversional occupation was practiced. There were 68 hospitals, representing 25 states, where silver stars were given, indicating that some special effort was being made along the lines of diversional occupation. The map which we present to you this year shows only the state hospitals (county asylums, private and incorporated hospitals have been omitted). There are 80 silver stars in 27 states. This map also shows the approximate location of every state institution for the insane, criminal insane, feeble-minded, epileptic, inebriates, and the psychopathic institutes in the United States. We hope this map will prove of some interest to you, as it presents in a very striking manner the provision made by the various states in caring for their mental defectives.

The committee has created arbitrary standards regarding diversional occupation, in order to classify the hospitals into three groups. The first group, represented by a gold star, indicates that the hospital has reached a very high point in the development of occupational therapy. The requirements are:

1st. A director and teachers of diversional occupation.

2d. A nurses' course in occupation.

3d. That at least 50 per cent of the "unwilling workers" are occupied.

4th. Separate departments for diversional occupation, as well as on the wards.

5th. That diversional occupation is prescribed after a careful study of the patient's condition and a record kept of the results attained.

6th. That diversional occupation is more or less self-supporting.

The second group, represented by a silver star, indicates that the hospital has a teacher of diversional occupation; that at least 25 per cent of the "unwilling workers" are occupied, and that there is a special room or department for this work.

The third group, represented by a red star, indicates that no special effort is being made to occupy the "unwilling workers," and that diversional occupation as outlined above is not practiced.

This classification has been made as the result of answers received to the questionnaire sent out in 1913 and again in 1914. When the hospital did not answer either communication and no information could be obtained concerning the methods employed, the hospital was put in the red star class.

If the committee has been in error in regard to any hospital, it is earnestly hoped that the error will be corrected. This classification of state hospitals has been done solely with the idea of stimulating interest in the subject of diversional occupation, and with the hope that a pleasant and friendly competition will be aroused, so that every superintendent will want to see his institution indicated by a gold star.

The first institutions to be given a gold star are the Massillon State Hospital, Ohio, and the following Massachusetts hospitals: Worcester State Hospital, Boston State Hospital, Grafton State Hospital, Gardner State Colony, and Taunton State Hospital. We hope that a number of other institutions will be added to this list during the coming year.

Your committee has also prepared a symposium on diversional occupation, which we hope will be of interest and elicit a lively discussion.

We desire to thank the Program Committee for their cooperation in arranging this symposium, and especially to express our appreciation to those who have gone to so much trouble and expense in preparing an exhibit for this meeting. We hope that the efforts of the committee in presenting the unlimited possibilities of diversional occupation as a therapeutic agent in treating the insane will be the means of stimulating those who have not as yet introduced this method as a part of their hospital activities, and that it will encourage those who are familiar with its many advantages to renewed efforts and especially to study the psychology of work and play in mental diseases.

We submit the efforts of the committee for your consideration and trust that the work may not stop here, but will be continued under another committee, that will develop it along more advanced lines.

The following hospitals have taken part in the exhibit:

Manhattan State Hospital, Central Islip State Hospital, Hudson River State Hospital, Gowanda State Hospital, Middletown State Hospital, Kings Park State Hospital, *New York;* Central State Hospital, Eastern State Hospital, Southwestern State Hospital, Western State Hospital, State Colony for Epileptics, *Virginia;* Norristown State Hospital, Pennsylvania Hospital, State Homeopathic Hospital (Allentown), Danville State Hospital, Blair County Hospital, *Pennsylvania;* Stockton State Hospital, *Cali-*

fornia; Springfield State Hospital, Spring Grove State Hospital, Sheppard and Enoch Pratt Hospital, *Maryland.* Crownsville State Hospital's exhibit arrived too late to display.

The following Massachusetts hospitals exhibited under the auspices of the *State Board of Insanity of Massachusetts:* Worcester State Hospital, Taunton State Hospital, Northampton State Hospital, Danvers State Hospital, Westborough State Hospital, Boston State Hospital, Grafton State Hospital, Medfield State Hospital, Gardner State Colony, Monson State Hospital, Massachusetts School for Feeble-minded, Wrentham State School, McLean Hospital.

The President appointed the following committee to constitute a jury of award: Dr. Charles Ricksher, Kankakee, Ill.; Dr. F. L. Hills, Bangor, Me.; Dr. E. M. Green, Milledgeville, Ga.; Mrs. Richard F. Gundry, Catonsville, Md., and Mrs. T. J. W. Burgess, Montreal, Que. This committee awarded certificates to the following institutions:

California.—Stockton State Hospital: Fish cord table runner, linen sofa pillow.

Maryland.—Springfield State Hospital: Paper work, raffia work, raffia jardiniere. Spring Grove State Hospital: Wax flowers, cotton crocheted slippers, children's clothing, crocheted quilt, embroidery. Sheppard and Enoch Pratt Hospital: Copper ornaments, wooden toys, wood work, reed jardiniere.

Massachusetts.—Danvers State Hospital: Hammered copper, leather work. Gardner State Colony: Reed work, basket work. Worcester State Hospital: Pottery work. Grafton State Hospital: String work. Westborough State Hospital: Shirt-waist box. Boston State Hospital: Senna mat. Northampton State Hospital: Tools and tinware. Taunton State Hospital: Oil painting, hammered brass work, fiber rug. McLean Hospital: Glazed pottery, woven bed spread, loom work.

New York.—Kings Park State Hospital: Braided rag rugs, stenciling, drawing. Hudson River State Hospital: Raffia, flowers. Middletown State Hospital: Embroidery. Central Islip State Hospital: Paper work. Manhattan State Hospital: Pastel, raffia. Gowanda State Homeopathic Hospital: Melon seed work.

Pennsylvania.—State Homeopathic Hospital, Allentown: Hooked rugs, patch-work quilt, Indian rugs. Norristown State Hospital: Dressed dolls, bobin lace, colored centerpiece, fireside basket, toys. Danville State Hospital: Hand-carved celluloid, carved paper weights, braid work, tatting, water color. Blair County Hospital: Cement work, plaster work.

Virginia.—Central State Hospital: Knitted scarf, crocheting, worsted work. Western State Hospital: Best art needlework, Irish crochet. Eastern State Hospital: Doll furniture, mats, wood carving, printed screen, silk embroidery on crepe. Virginia State Colony for Epileptics: Woven hammock, paper work. Southwestern State Hospital: Knitted bed spread, raffia table mat.

The committee desires to thank the judges for their painstaking study of the exhibit.

Respectfully submitted,
G. W. Brown,
C. F. Haviland,
J. S. DeJarnette,
W. R. Dunton, Jr.,
A. P. Herring, *Chairman,*
Committee.

The President.—You have heard the report of the Committee on Diversional Occupation—what is your pleasure in regard to it?

Dr. Brush.—I move that the report be accepted, and the thanks of the Association extended to the committee for their very successful work.

Motion duly seconded and carried.

The President.—The program calls for a symposium on "Diversional Occupation"; the first paper is by Dr. Frost, of Boston.

Dr. Henry P. Frost, of Boston, Mass., read a paper entitled "Occupation for the Insane."

The President.—Discussion of Dr. Frost's paper will be postponed until afternoon.

The next paper is by Frank M. Mikels, M. D., of Morris Plains, N. J., entitled "The Therapeutic and Economic Value of Diversional Occupation," which will be read by title.

The meeting will now adjourn for the purpose of visiting the Hampton Institute. We will take up the remainder of the morning program this afternoon.

At 11.30 a. m. special cars provided by the Committee of Arrangements conveyed the members of the Association and their guests to the Normal and Agricultural Institute at Hampton, where they were given an entertainment by the officers of the Institute, in which the performers were young colored people from the student body; the return trip was made at 1.30 p. m., arriving at the hotel about 2 o'clock.

Afternoon Session.

The President.—The Association will please come to order. The Secretary will read the report of the Council.

Report of the Council for May 13, 1915.

The Council recommends the transfer from associate to active class of Dr. Y. H. Yarbrough, Milledgeville, Ga.

The Council recommends the election of the following named physicians to the associate class: G. G. Hankins, M. D., Williamsburg, Va.; C. B. Reitz, M. D., Allentown, Pa.; Emanuel S. Brodsky, M. D., Westport, Conn., and F. B. E. Miller, M. D., Cherokee, Ia.

The Council also makes the following recommendations: That the matter of printing, publishing and soliciting subscriptions to the History of the Association, now in preparation, be referred to Dr. Henry M. Hurd and his associates on the committee, with power.

That the incoming President be authorized to appoint a Program Committee and also a Committee of Arrangements for the next annual meeting.

That the dues for the ensuing year be fixed at the usual rates, viz.: Five dollars for active members, and two dollars for associate members.

Respectfully submitted,

Charles G. Wagner, *Secretary.*

The President.—You have heard the report of the Council—what are your wishes?

Dr. Wm. A. White.—I move the report of the Council be received and adopted.

Motion duly seconded and carried.

The President.—I will call for the report of the Committee on Immigration, Dr. Brush, Chairman.

Mr. President and Members of the Association: The Immigration Bill (No. 6060) came to a vote in Congress in January, 1915, and received a very large majority in each House. The bill, as it finally passed the House, contained all the amendments recommended by this Association, and we believe that its enactment would have provided an adequate defense against the admission of insane or mentally defective immigrants, at the same time providing much more effectively for the return of the alien insane from our public institutions. The principal provisions of the bill were:

1. Providing that the medical officers of the United States Public Health Service who have had special training in the diagnosis of insanity and mental deficiency shall be detailed for duty at ports of entry designated by the Secretary of Labor, and that the services of interpreters and suitable facilities for making mental examinations and observing cases shall be provided for these medical officers.

2. Providing that the surgeon of each vessel shall make a mental examination of each immigrant before accepting him for passage. (A physical examination only is required at present.)

3. Providing a fine of $200 for bringing to this country any insane or mentally defective person whose condition could have been detected by a competent medical examination at the time of embarkation.

4. Adding constitutional psychopathic inferiority and chronic alcoholism to the excludable causes.

5. Making it mandatory for the Secretary of Labor to provide suitable attendants for immigrants being deported, when they require personal care on account of mental or physical disability.

6. Increasing from three to five years the period in which deportation of aliens who have become a public charge in this country can be effected—unless it can be affirmatively shown that their dependence is due to causes arising subsequent to landing.

7. Providing that deportation can be effected subsequently if proceedings are *instituted* within five years.

President Wilson gave a public hearing before passing upon the bill, at which two or three members of this committee and the chairman represented the American Medico-Psychological Association. A number of other national organizations especially interested in mental diseases and mental deficiency united with the representatives of this Association in selecting Dr. Stewart Paton as spokesman. Dr. Paton presented the views of those whom he represented very convincingly, and no subsequent speaker undertook to take issue with him.

The bill was vetoed by President Wilson, his veto message dealing wholly with the clause providing for a literacy test and that which denied admission to persons fleeing from punishment for certain political offienses. He took occasion later to warmly praise the amendments in which we are especially interested.

An attempt was made in Congress to pass the bill over the President's veto, but without success.

A similar bill will be introduced as soon as Congress assembles in December, and it will be necessary for all those interested to insist again that the amendments to which we are committed are included. Therefore, it is very desirable that a Committee upon Immigration be continued and be authorized to continue efforts to secure the legislation which this Association advocates.

THE PRESIDENT.—You have heard the report of the Committee on Immigration—what is your pleasure?

DR. WM. A. WHITE.—I move that the report be received and approved, and the committee continued.

DR. BRUSH.—Mr. President, in regard to Dr. White's last words, "and *the* committee continued," I do not quite like to be the "Pooh Bah" of this Association; I am the President-elect, the editor of the JOURNAL OF INSANITY, and I think I might be excused from the chairmanship of this committee.

THE PRESIDENT.—You have heard the motion of Dr. White. All in favor, please say aye; opposed, no. The ayes have it, and the motion is carried.

Dr. Wagner.—Mrs. Drewry desires me to announce on behalf of the ladies, that a card party has been arranged for this evening for the ladies; the place and time will be announced later.

The President.—I see that Dr. Stearns is in the room, and as he is on the program for a paper this afternoon, I will ask him to read his paper now, before concluding the symposium on "Diversional Occupation."

Dr. A. Warren Stearns, of Boston, Mass., then read a paper entitled "A Survey of 'Defective Delinquents' Under the Care of the Massachusetts State Board of Insanity." Discussed by Drs. Houston, Bernstein, Hurd and Stearns in closing.

The President.—We will now return to the symposium on "Diversional Occupation" opened this morning. The first speaker will be Dr. C. Floyd Haviland, of Kings Park, N. Y.

The following topics were presented:

"What Are the Advantages of an Occupation Schedule?" by C. Floyd Haviland, M. D., Kings Park, N. Y.

"Should Patients be Rewarded for Industrial Occupation?" by Charles E. Thompson, M. D., Gardner, Mass.

"Is an Occupation Teacher Desirable?" by Henry I. Klopp, M. D., Allentown, Pa.

"Should Occupation be Limited to Work-rooms, or Distributed About the Wards?" by Horace G. Ripley, M. D., Taunton, Mass.

"Should There be a Definite Recreation Schedule?" by Wm. Rush Dunton, M. D., Towson, Md.

These topics were discussed by Drs. McKinniss, Dewey, Bancroft, Sommer, Tuttle, Herring and Dunton.

The President.—The next paper on the program is by Dr. Henry J. Berkley.

Dr. Brush.—Dr. Berkley is unable to be present. He asked me to express his regret, and desired that his paper, which he has placed in my hands, be read by title.

"The Psychoses of the High-Imbecile," by Henry J. Berkley, M. D., Baltimore, Md., was read by title.

The President.—Dr. L. Pierce Clark is also absent, and his paper, "Outlines of a State Policy for Dealing with Mental Deficiency," will be read by title also.

We have no program for this evening, but we will assemble promptly at 10 o'clock to-morrow morning for the closing session. If there is nothing further to come up this afternoon we will consider ourselves adjourned until to-morrow morning.

FRIDAY, MAY 14, 1915, 10 A. M.

THE PRESIDENT.—The Association will please come to order. The first order of business will be the election of members as proposed by the Council yesterday.

DR. HENRY M. HURD.—I move the Secretary be instructed to cast the ballot of the Association for the transfer from associate to active membership and election of new members as recommended by the Council.

Motion duly seconded and carried.

(This list is given in the reports of the Council for Wednesday and Thursday.)

THE PRESIDENT.—Is there a report from the Committee on Statistics? Dr. Salmon is unavoidably detained, and if there is no report the committee will be continued.

I am informed that Dr. Williams, of Washington, is unable to be present, therefore his paper entitled, "The Results of Psychoanalysis of a Case of Involution Melancholia," is read by title.

Is Dr. Alfred Gordon, of Philadelphia, present? If not, his paper on "Psychoses, Psychoneuroses and Mental Deficiency in 6000 Cases Considered Especially from the Standpoints of Sex and Etiological Incidents," will also be read by title.

We will now listen to Dr. Rosanoff's paper.

The following papers were read:

"Some Neglected Phases of Immigration in Relation to Insanity," by A. J. Rosanoff, M. D., Kings Park, N. Y. Discussed by Drs. Hill, Swift, Mullan and Rosanoff in closing.

"Observations on the Voice in Tabes—A Voice Sign," by Walter B. Swift, M. D., Boston, Mass.

THE PRESIDENT.—This concludes our program.

DR. BRUSH.—We have had three or four papers which have been read by title, and I understand that two or three of these gentlemen have made no excuse for their non-attendance. It seems to me it is not quite the thing for members to send on titles to papers and get a place on the program without taking any pains to present their papers or to send their papers for some one else to read, or to make any excuse for their non-appearance at the meeting. It seems to me that papers of that type should be excluded from the TRANSACTIONS, and that in future notice to that effect be sent to those who desire a place on the program, and then if they do not appear or send an excuse for their non-appearance, after having asked for a place on the program, that their papers do not appear in the TRANSACTIONS. I am willing to offer a resolution to that effect.

DR. BURGESS.—I strongly support Dr. Brush's motion.

Dr. C. B. Burr.—I would move that the precedent heretofore established be followed in the present instance, but that the whole question be referred to the Council for recommendation and report at the next meeting.

Dr. Brush.—I withdraw my motion and accept the amendment.

The President.—The first motion has been withdrawn, and Dr. Burr's motion substituted. Those in favor of referring the whole matter to the Council please say aye; opposed, no.

Motion is carried and it is so ordered.

The President.—It is in order now to receive the report of the Committee on Resolutions.

Dr. R. W. Bruce Smith.—At the request of Dr. Arthur W. Hurd, chairman of the committee, who was obliged to leave this morning, I beg to present the report of the committee.

The Committee on Resolutions offers the following:

Whereas, The Committee of Arrangements of this meeting of the Association has made so efficient, admirable and painstaking efforts for its welfare; such good provision for the scientific sessions, and such a hospitable and interesting program for the entertainment of the members, their families and guests, as to make this meeting at this beautiful place a memorable and delightful one;

Resolved, That the thanks of this Association be most sincerely tendered to Dr. Drewry and his committee associates, to the General Board of Hospital Directors of Virginia, to the Hon. Douglas Southall Freeman, to the Hampton Institute, to the Army and Navy, and to the citizens of this community; to Mrs. Burgess, of Montreal, and Mrs. Richard F. Gundry, of Catonsville, Md., for kindly assistance in judging the exhibits illustrating diversified occupations; to the management of the Hotel Chamberlin for their kind efforts in our behalf, sustaining in full measure the old reputation for hospitality of the State of Virginia.

Arthur W. Hurd,
R. W. Bruce Smith,
W. P. Crumbacker,
Committee on Resolutions.

The President.—You have heard the resolutions—what will you do with them?

Dr. C. B. Burr.—I move their adoption by a rising vote.

Motion duly seconded and unanimously carried by a rising vote.

THE PRESIDENT.—I desire to inquire whether the Committee on Awards has any report to make to the Association? I presume no formal report is necessary, so we will pass on.

I know of no further business to come before the Association other than the induction of the President-elect into office.

Before presenting the President-elect, I take this occasion to say a word of farewell.

Members of the Association: Our work for this session has been completed and the hour of parting is now here. I regret that words fail me to express my gratitude to you for the honor you have bestowed upon me in permitting me to preside over your deliberations during this meeting. I repeat, I esteem it the highest honor which ever came to me, and I can aspire to no greater distinction. I thank you from the bottom of my heart. I am grateful, too, for your patience and assistance and consideration in my efforts, feeble at best—none knows better than I, to discharge the duties of this honorable position. Please forget my blunders.

For the success of this meeting credit is largely due to the efficient Secretary, Dr. Wagner, and the splendid Committee of Arrangements. To Dr. Wagner I am personally indebted beyond all expression. It has afforded me joyous satisfaction to see you honor him by election to the office of Vice-President. His work will always do credit to this Association and to himself.

The Committee of Arrangements contributed so much to the meeting that I would appear ungrateful if I did not give it special mention. To Dr. Drewry and his associates, I take off my hat, and to Mrs. Drewry, Mrs. Brown, Mrs. Bohannan, Mrs. Osborne, Mrs. West and others, I make my bow.

I now vacate the chair to make room for one who is so well known to you and all workers in the common cause that any introduction by me is both superfluous and incongruous. It is a coincidence that he and I became members of the Association at the same time, 24 years ago. He has borne his share in all the activities of the Association, as one of the editors of the JOURNAL OF INSANITY and member of most of the committees having any hard work to do, and member on the floor. He has done all his work well, and the Association honors itself in honoring him. It is a pleasure to vacate this honorable position to a good friend so faithful and able, and so fittingly deserving of your preference.

Dr. Brush, I welcome you as the President of the American Medico-Psychological Association for the coming year, and now transfer to your hands the gavel of authority which carries with it a high honor and proof of the esteem in which you are held by this Association. You will, I am assured, preserve the dignity of the office and add grace and efficiency to the manner of discharging its duties. I welcome you and congratulate you as friend, coworker, gentleman and scholar, deserving of this distinguished honor, and I bespeak for you a splendid administration.

Members of the Association, your President, Dr. Edward N. Brush, of Maryland. [Applause.]

DR. BRUSH.—*Dr. Smith, and Members of the Association:* I very much regret that I have not any formal speech prepared; that I have not even sent to the Secretary an abstract that will appear on the program. I accept this emblem of office, promising you that if, perhaps, in the past I have occasionally been a little too much of a "knocker," I shall not use it for that purpose in the future.

No one, I think, can stand where I stand to-day without appreciating that he has had conferred upon him one of the highest honors which can come to the professional man in this country; to be the President of the oldest national and, in fact, international, medical association on the Western Continent is no small honor; to be President of a body engaged in the work we are engaged in and composed of such members as we fortunately have in our Association, is a very great honor, and I thank you most heartily that you have conferred it upon me.

I cannot on this occasion let the opportunity pass to call your attention to the extreme modesty of my predecessor. We all agree with him in giving very great credit, as we have done on numerous occasions, to the efficient Secretary, for the success of our meeting; but I know of no occasion on which it could have been more fittingly said of any man who has taken his place in the presidential chair that the success of the meeting was due in such large measure to the manner in which the sessions have been conducted by the retiring President, and I think we all unite in regretting the fact that we are losing Dr. Smith as the President of the Association. I am glad to say, however, that a precedent has been established this year by which the retiring President remains a member of the Council for three years, to add his advice as the result of accumulated experience to the proceedings of that body, and we shall all depend very largely upon you, Dr. Smith, for your advice.

DR. BURR.—I want to propose a vote of thanks to the retiring officers: The President, the Secretary, and I should like to include also the Program Committee; we certainly owe a great deal to the officers for the excellence of this program, and the augmentation of the membership of the Association. I would like to propose a hearty resolution of thanks to the retiring officers, and would ask that this be given by a rising vote.

DR. SMITH.—I would like to add another name to the list referred to by Dr. Burr, viz., that of Miss Margaret M. Bloxham, the efficient stenographer, who has, with painstaking care and accuracy, reported the proceedings of this Association for several years past, and to express my appreciation of the great service she has rendered.

DR. BRUSH.—I second that motion, and wish to say that, as editor of the JOURNAL, I perhaps appreciate better than anybody else the extent of the service Miss Bloxham has rendered in promptly and accurately transcribing the proceedings for publication in the JOURNAL.

Dr. Burr.—I accept the amendment, and only regret that I failed to mention the name of Miss Bloxham in the original motion.

Motion carried by a rising vote.

Dr. Brush.—Is there any further business to bring before the Association? If not, a motion to adjourn is in order.

Dr. Burr.—I move that we adjourn.

Dr. Brush.—It has been moved that we adjourn. I therefore declare this Seventy-first Annual Meeting of the Association adjourned to meet in New Orleans, La., next year, at a time to be named by the President.

Charles G. Wagner, *Secretary*.

Notes and Comment.

Sir Thomas S. Clouston.—Sir Thomas Smith Clouston, M. D., LL. D., a psychiatrist of world-wide fame and for many years an honorary member of the American Medico-Psychological Association, died in Edinburgh on April 19, 1915, within three days of his seventy-fifth birthday. Death occurred suddenly from cerebral hemorrhage.

Dr. Clouston took his degree in medicine at the University of Edinburgh in 1861, receiving a gold medal for his thesis. After service as assistant physician at the Edinburgh Royal Asylum, Morningside, under Dr. Skae, begun immediately after graduation, Dr. Clouston was appointed, in 1863, medical superintendent of the Cumberland and Westmoreland Asylum at Carlisle, to use his own words, " as a sort of boy physician at the age of 23." In 1873 he succeeded his former chief at Morningside. In 1879 he became lecturer on mental diseases to the University of Edinburgh. For many years he was one of the editors of the *Journal of Mental Science*. In 1883 he published his clinical lectures on mental diseases, a book which passed through several editions and served greatly to extend the name and fame of its author throughout the world. Later books were " The Neuroses of Development," " The Hygiene of the Mind," " Unsoundness of Mind," and " When I Wed." Perhaps the deceased alienist will be best known to posterity for his contributions to the study of adolescent insanity, a field in which he anticipated as a pioneer, by his masterful clinical exposition, the later, more elaborate work of the German school of Kraepelin. Mention may also be made of Dr. Clouston's brilliant annual reports, which were practically messages in mental hygiene addressed to the people, by means of which, moreover, much of the reproach attaching in an earlier day to mental diseases was in large measure happily removed.

In 1911, on the occasion of a visit of the King and Queen to Edinburgh, Dr. Clouston had the honor of knighthood conferred upon him. After his retirement from the superintendency of Edinburgh Royal Asylum a few years ago, Sir Thomas devoted himself to consultation practice, for he was temperamentally unfitted for a life of leisure. He was keen, energetic, optimistic, and of indomitable spirit to the end. No British psychiatrist enjoyed a larger share of the esteem and affection of his fellows. He was genial in manner though rugged in speech; in his writings he was an adept in terse and vigorous English, and on the floor a lucid and valiant debater. Intellectually and morally he was a tower of strength, and he was distinctly a man of "character." His most enduring monument is the Edinburgh Royal Asylum at Morningside, where he wrought many years with conspicuous ability and trained a multitude of young men in the science and art of psychiatry.

We do not presume at this time to estimate Sir Thomas Clouston's rank in the world of psychiatry. That is a judgment that must be made later, but there can be no doubt that by a great many competent and discerning critics of his own race and speech the deceased was regarded as without a rival among British clinical alienists.

Sir Thomas Clouston married Harriet Segur Storer, daughter of William Storer, of New Haven, Conn. He is survived by Lady Clouston, two sons, one of whom, J. Storer Clouston, is a writer of fiction, and by one daughter, the wife of Mr. David Wallace, C. M. G., a well-known surgeon.

FEEBLE-MINDED CITIZENS OF PENNSYLVANIA.—In the JOURNAL for April we had occasion to refer to the survey of the institutions for the insane in Pennsylvania made under the auspices of the Public Charities Association of that state. We have since then received a report of a survey of a " certain locality comprising about 700 square miles and having a population estimated at 16,000 " in Pennsylvania, in reference to the occurrence of feeblemindedness. This survey occupied four months from August 7 to December 6, 1914, and was made by S. Wilhelmine E. Key for the Public Charities Association, and was made possible by the generosity of Mrs. Edward T. Stotesbury of Philadelphia.

The purpose of the study was to determine the number of mentally defective persons in this community, and their cost to the people of Pennsylvania, as well as to discover possible remedies for a condition that experts agree becomes rapidly worse wherever left unchecked.

Dr. Key found in this district 508 persons, ranging in age from six years upward, who were feeble-minded—that is, who were either clearly mentally defective, or who, being members of the family of such a defective, have been so affected by their associations and environment as to be indistinguishable from mental defectives in their conduct and social and family relations.

In other words, more than three defectives not in institutions were found for every 100 of the population of this Pennsylvania community. This enumeration did not include a considerable number of shiftless, indolent, inefficient persons, who had no clear mental or physical defect, but who, in a stricter classification, might be classed with the defectives, so far as their effect upon the community is concerned. Nor did it include children under six, unless they were obviously and unmistakably defective.

A careful house-to-house study, oft-repeated, verified and amplified by examination of official records and family histories and by consultation with well-informed neighbors and social workers, developed several striking conclusions:

(1) Certain centers of mental and moral degeneracy and defect were found, which corresponded closely with the distribution of certain well-known mentally tainted family stocks. In two little settlements, for instance, on the edge of the area studied, it was found that 57.7 per cent and 26.6 per cent of the population were mentally defective, in the sense above indicated. Examination revealed the fact that these settlements were the original seats of two families that were notably defective. By inbreeding and inter-breeding, the original small groups, after several generations had brought forth hundreds of their own kind, and other hundreds who were on the borderline of inefficiency and mental defectiveness.

Not only by drawing together representatives of their own and other bad strains, but by attracting weak members of better and normal families, these settlements became centers of constantly widening and contaminating influence, the more aggressive members going out to found other centers of contamination.

(2) From figures supplied by the officers of the county most directly concerned, Dr. Key shows that the actual financial cost to the county, for caring for and protecting against these defective groups during the last 25 years, has been at least $265,000, of which $125,000 was actually spent for maintenance of representatives of these families in the county home for varying periods; $30,000 for care of orphans; $75,000 for settlement of criminal cases outside of court; $15,000 for settlement of criminal cases in court, and $20,000 for outdoor or home relief. This takes no account of the cost of their private depredations, nor of private charity, nor free medical attendance, nor necessary extra police service, nor drink bill, etc.

In this connection Dr. Key says:

> Could this sum have been applied to the segregation of its feeble-minded women, it would have sufficed to rid the county of the whole of its younger generation of undesirables. We must bear in mind, however, that at present the state has no institution for the care of such women . . . . The training schools for the feeble-minded are overcrowded and have long waiting lists . . . . Our short-sighted policy . . . . has not even the merit of being inexpensive. It costs a great deal of money and then serves only to aggravate the evils which it is designed to cure. . . . . The county has done the best it could with the means at hand. Surely it is high time that the state inaugurate a more intelligent and far-reaching policy which shall forever rid these sections of their unequal and undeserved burden.

(3) There is a very distinct tendency for mental defect to run in certain families, indicating the strong hereditary influence, which can only be checked by steps to prevent marriage and continued propagation of the kind. Dr. Key's report contains several graphic charts, illustrating the hereditary taint upon certain family stocks, through several generations.

For instance, Chart B shows the family history of one family, originating in a marriage of cousins, out of defective strains. This couple came to the village S—— in this district a dozen years ago, and have been a problem to the community ever since.

The youngest of their 12 children had cleft-palate and did not live. The next older was a cripple who never walked and died at three. All the four grown daughters are very defective mentally; three are deaf and imbecilic, and three have had children born out of wedlock. Two of them are now married to men as lacking as they are, and have growing families of children. Of the sons, only one is steady and works hard to keep the family from absolute want. The father died last year, and the mother has been bedridden with rheumatism for several years. She lives with five younger children and her illegitimate granddaughter in part of a rickety store building; sits smiling all day long on an old rope bedstead, the only care she has being what her deaf imbecile daughter can give her. One daughter has been sent to a state hospital and there is no question but that the rest of the family should be cared for in an institution.

Similar charts describe networks of other families, showing with equal positiveness the tendency of defectives to multiply their kind.

(4) Comparisons between groups of 45 defective women, and 45 normal women in the same area, showed that the average birth-rate for defectives was seven children to each mother, while that of the normal women was 2.9 children for each mother. This excess of defective births was not offset by higher mortality rate among defectives, the actual survivals of children of defective mothers being twice as great as in normal families.

While it is recognized that this narrow inquiry, covering so few cases, is not to be accepted as conclusive, it seems clear that in this particular area, the tendency to multiplication is considerably greater among defectives than among normals, thus intensifying and emphasizing the problem of caring for and preventing the unlimited propagation of mentally tainted children.

(5) Centers of defectiveness have flourished where remedial agencies have been most active for relief of external conditions. The lightening of the struggle for existence which this relief brings only makes it easier for the defective to live on, procreate and multiply his kind. The root of the evil lies not primarily in external conditions, but in the failure to separate and restrain inherently defective individuals from propagation.

For purposes of classification and study, Dr. Key divided the defectives found into groups, according to their predominant traits of conduct or offense.

The largest class contained 152 adults, who are termed "partially dependent"—that is, those who required public and private charitable relief, but who exhibited no positive vices, and whose defect ranged from imbecility to the higher grades of mental incapacity.

Thirty adults were found whose defect was closely associated with and manifested in alcoholism.

Eighty-nine were found who were sexually immoral.

Twenty-two were criminalistic.

Twenty are classed as alcoholic and sexually immoral.

Fifteen are called alcoholic and criminalistic.

Ten are classed as sexually immoral and criminalistic.

Three are grouped as alcoholic, sexually immoral and criminalistic.

This division displays clearly one of the striking perils of the situation.

An interesting sidelight on the situation is contained in Dr. Key's study of the rural school, in relation to the defective. This disclosed 160 pupils whose inability to advance could be laid primarily to hereditary defect. The detailed histories of 50 such children are given in the report. An instance is cited, where, of 40 children in a certain school, 10 were defective, or retarded in their development from two to four years. The effect of these children upon the normal children, and the waste effort expended by and for the defectives themselves, is one of the sound arguments for wider state supervision and care of defectives.

In conclusion, Dr. Key remarks:

> No sensible person to-day questions the state's authority to cleanse a polluted water supply or take any measures deemed necessary to stop the spread of disease. . . . . Why should it not exercise the same jurisdiction with regard to these plague spots, the sources of moral contagion?

She strongly urges the need of locating the worst centers of degeneracy and defect; registration of notoriously bad strains; marriage laws to restrain marriage into these strains; establishment of adequate institutions immediately, for the custodial care of those whose continued multiplication cannot be prevented by these means.

THE SEVENTY-FIRST ANNUAL MEETING OF THE ASSOCIATION.—The meeting of the American Medico-Psychological Association which was held at Old Point Comfort, Va., in May was well attended, over 130 members having registered and more than 60 guests and visitors being present.

The papers which were presented were many of them of a high order, and several provoked a spirited discussion. It is to be regretted, however, that, notwithstanding the abstracts of papers which are printed in advance, a large number of members do not take part in the discussions, and that so often the discussions, instead of taking up the real points in the paper or bringing out others which have been omitted by the author, degenerate into complimentary remarks or platitudinous discourses more or less remotely related to the questions at issue. Perhaps this defect—for we consider it a real one—might in a measure be overcome by the selection of two or three members for each paper who would agree to lead in the discussion thereof. In this selection the authors of the various papers to be presented might be consulted and might render valuable aid in the choice.

The address of the President was a timely one, and held the attention and interest of the audience, and his conduct of the meeting met with the warmest approbation.

The annual address, by Douglas Southall Freeman, Ph. D., editor of *The News Leader* of Richmond, Va., upon "Publicity and the Public Mind," was in manner and matter one of the most interesting addresses delivered before the Association in a long time. We are happy to be able to present it to our readers in this number of the JOURNAL.

The sessions of the meeting were somewhat shortened by the absence of several gentlemen who had been accorded places on the program, but who did not appear and whose papers were therefore only presented by title. In two or three instances, the absence was unavoidable, but the absentees had shown their appreciation of the amenities of the occasion by sending their regrets together with the manuscript of their papers; but in other cases, neither paper nor explanation was forthcoming. This matter was referred to the Council for future action, and the establishment of some rule which would govern the situation in the future.

The next meeting will be held in New Orleans, La., at a time to be fixed by the Council.

Dr. Hurd, chairman of the Committee on the History of Institutional Care of the Insane in the United States and Canada, made a report of progress which was subsequently considered by the Council, which authorized the committee to proceed with the printing of the history. Every member of the Association should individually subscribe for the history, and every hospital should also arrange to have a copy in its library. Prompt replies should be sent to the circular letters which will soon be sent out inviting subscriptions.

INSTITUTION LIBRARIES LEAGUE.—Upon the application of certain librarians interested especially in work in institutions, the American Library Association, at a recent meeting, voted to appoint an Executive Committee to further the formation and growth of libraries in hospitals (state, general and special), schools for the feeble-minded, prisons and reform-schools. This committee, as organized, bears the name of The Committee on Library Work in Hospitals and Charitable and Correctional Institutions, and is composed of seven members: Miriam E. Carey, *Chairman, Supervisor of Institution Libraries, Minnesota State Board of Control;* Julia A. Robinson, *Secretary of the Iowa Library Commission;* E. Kathleen Jones, *Librarian at McLean Hospital, Waverley, Mass.;* Florence R. Curtis, *University of Illinois Library School;* Florence Waugh, *Supervisor of Institution Libraries, Nebraska Library Commission;* Mary E. Eastwood, *New York State Library;* Carrie E. Scott, *Indiana Public Library Commission.*

The plan of the committee is to organize the various hospitals and other institutions in the United States and Canada into an INSTITUTION LIBRARIES LEAGUE, for the purpose of mutual help and exchange of ideas. The committee hopes that every hospital, general or special, which has a library or wishes to have one, will join the League. Communications in regard to it should be addressed to Miss Miriam E. Carey, State Board of Control, St. Paul, Minnesota. To be a member, it is not necessary to be a trained librarian; in fact, it is to help the *un*trained librarian that the League is formed—that through it, the services of those who have had experience in this work may be at the disposal of the others. Anyone, physician, stenographer, nurse, patient—whoever has charge of the library— is eligible to represent the hospital.

In addition to the formation of the League, the committee plans to publish as soon as possible the following monographs:

Survey of Institution Libraries.

Manual on Arrangement and Care of Books in Institution Libraries.

Syllabus of a Course of Lectures on Books and Reading, Suitable for a Training-school for Nurses.

Bibliography of Occupational Work and Handicrafts in Hospitals and Prisons.

" Campaign Material "—Statement of Reasons for Developing and Maintaining Institution Libraries.

That the bibliography of handicrafts may be as complete as possible, every hospital making a feature of this work, or specializing in any branch of it—embroidery, lace-making, weaving, basketry, pottery, woodwork, etc.—is urged to send to Miss Jones, McLean Hospital Library, Waverley, Mass., a list of books, pamphlets and articles in periodicals which have been found valuable in this department.

The committee would also call the attention of hospitals to the fact that there still remain a few copies of " A Thousand Books for the Hospital Library," which may be had for twenty-five cents each upon application to the A. L. A. Publishing Board, 78 E. Washington Street, Chicago.

Through the courtesy of the editors of the American Journal of Insanity, notices of the League and the work of the committee will be published from time to time in this periodical.

THE COMMITTEE ON LIBRARY WORK IN HOSPITALS AND CHARITABLE AND CORRECTIONAL INSTITUTIONS.

MIRIAM E. CAREY, *Chairman,* } Sub-Com. on Hospitals.
E. KATHLEEN JONES, }

Book Reviews.

Feeble-Mindedness: Its Causes and Consequences. By HENRY HERBERT GODDARD, Ph. D., Director of the Research Laboratory of the Training School at Vineland, N. J., for Feeble-Minded Girls and Boys. (*New York: The Macmillan Company, 1914.*)

" This book," we are told in the preface, " is in the nature of a report on work done at the Vineland Research Laboratory during the past five years in an attempt to discover the causes of the feeble-mindedness of the children of the institution."

The investigation has been evidently most carefully conducted, and with a conscientious determination not to permit preconceived ideas in any manner to influence conclusions.

Reference is early made to the difficulties which are experienced in exactly determining what constitutes such a degree of mental defect as shall mark the individual as feeble-minded.

" If we leave out those whom society has already recognized as idiots or imbeciles, we have a higher group, the specifically feeble-minded or moron which has been described by the Royal College of Physicians in the following terms: 'One who is capable of earning his living under favorable circumstances, but is incapable from mental defect existing from birth or from an early age (a) of competing on equal terms with his normal fellows, or, (b) of managing himself and his affairs with ordinary prudence.' This definition, it is seen, would include a great many whom we have not thought of as feeble-minded." " So strong," continues the author, " is their resemblance to the normal person that although they are well understood by those who have studied them and have dealt with them in institutions, yet there are many people even to-day who refuse to admit that they cannot be trained to function like normal people."

In these cases the emphasis should be put upon the word *incapable,* a word which has been too much ignored in a consideration of the social and other relations of the persons who come into this great group.

At once, when we recognize that they *cannot,* rather than *will not,* compete successfully with others under the same conditions, that they cannot manage their affairs with prudence and judgment, that they cannot avoid intemperance and are incapable of resisting temptation to social vices, we realize that a different situation confronts us and we cease attempting to reform drunkards and those who lead lives of sexual immorality—and look about for means to protect those who are incapable of protecting themselves—and in protecting them at the same time protect society. We have, heretofore, too many of us, and we continue still to do the same, preached to a large number of people temperance, chastity, obedience to law, frugality and industry, believing they *could* practice all of these if they *would* when as a matter of fact they were not only incapable, but were most prone to follow the lines of least resistance.

One sees at once how great a modification must be made by many people, by courts and law makers, of our conceptions of responsibility before the law, as relates to a large number of individuals. " The hereditary criminal," Dr. Goddard says, " passes out with the advent of feeble-mindedness into the problem." " It is hereditary feeble-mindedness, not hereditary criminality, which accounts for the conditions."

The reviewer is greatly tempted to quote to a large extent from what Dr. Goddard quite convincingly says upon criminality, alcoholism, prostitution, pauperism, but neither space nor time permits. These subjects, the question of the place which the feeble-minded fill in the social life of to-day, and the biological problems; the causes of mental defectiveness, its physical basis and methods of prevention are the subject of the book. The author tells us in his preface that some of the conclusions, based upon the studies of which this book is the product, " are as surprising to the writer and as difficult for him to accept as they are likely to be to many readers." The relation of alcohol to feeble-mindedness is to " the writer," for example, " a complete surprise." It has long been taught that alcoholism, drunkenness, in one or both parents, was a somewhat fruitful cause of mental defect in the offspring, but the author says that his data do not prove that drunken parents any more certainly have feeble-minded children than do parents who do not drink.

These studies embrace 327 family histories. Twenty-seven have been thrown out as containing insufficient data. One hundred and sixty-four or 54 per cent of the remaining histories leave no doubt of the hereditary character of the defect. Thirty-four or 11.3 per cent are grouped as probably hereditary. In 12 per cent a neuro-pathic ancestry was found, such as paralsis, apoplexy, brain disease, epilepsy and insanity. In 19 per cent accidental causes were found and in 2.6 per cent no cause was found though for the most part occurring in intelligent families who gave every possible help to discover a cause.

In conclusion the author summarizes as follows:

First: The mere recognition that there is a problem of the feeble-minded will go a long way toward its solution.

Second: A large part of the mental defectives who cannot be segregated may be reasonably and safely cared for in their homes, when we learn to recognize them for what they are, children in intelligence, though men and women in body.

Third: We must increase our efforts to segregate as many as possible, because for a long time to come there will be a larger number who need colonization, than we can possibly care for.

Fourth: We must have sterilization wisely and carefully practiced for the solution of many individual problems that are not reached by any other method.

The conclusion reached by the author is that feeble-mindedness should attract greater attention from those interested in social welfare; that it underlies all our social problems and is therefore worthy the attention of statesmen and social leaders; that it is mostly hereditary and in all probability transmitted in accordance with the Mendelian law of heredity and that "the way is open for eugenic procedure which shall mean much for the future welfare of the race."

The book is a thoughtful and careful contribution to an important subject and will well repay study.

The Story of Bethlehem Hospital from its Foundation in 1247. By EDWARD GEOFFREY O'DONOGHUE, Chaplain in the Hospital. With 140 Illustrations. (*New York: E. P. Dutton & Co., 1915.*)

The history of no institution for the care and treatment of mental disorders dates as far back as does that of the Bethlehem Royal Hospital of London, and none is of greater interest.

It is a far cry back to that 23d of October, 1247, when Simon FitzMary gave a deed of that land which he had "in the parish of St. Botolph without Bishopesgate" to God and the Church of St. Mary of Bethlehem for the foundation of a priory there. The gift was bestowed, as is related in the deed, for the benefit of the city of London in manifold ways as well as for the salvation of the soul of the donor, his ancestors and descendants and his friends, and especially of the souls of three friends whom he names, together with the souls of their wives.

It is clear from the deed that FitzMary did not dream of establishing anything more than a religious house of the order of the Star of Bethlehem, that a hospital, and particularly a hospital for the insane, was not contemplated in his benevolent foundation.

Whatever may have been the intentions of the founder, it appears certain that his priory from mismanagement sometimes, ofttimes through downright dishonesty, did not flourish, and that for a century, as far as the meagre records remaining show, it was often in want, sometimes in dire distress.

Upon the claim that it was an alien priory Edward the III seized Bethlehem, some time before 1375, and there appears to have been a protracted controversy between Edward III and the City of London over the "patronage," or what the modern politician would call the "spoils," pertaining to the conduct of the priory. This controversy between the Crown and the city was not indeed settled until 1547 when Henry VIII granted to the "Mayor, Commonalty and citizens" of London a deed or covenant making them "masters and governors of the house or hospital called Bethlem." This was signed but seventeen days before the death of the King. It will be seen that the statement often made that the hospital was seized by Henry VIII is an erroneous one; the seizure had already been made by Edward III about two centuries before, and in 1346 an agreement had been made between the brethren and the city touching the election, duties and jurisdiction in the affairs of Bethlehem of "the mayor, two aldermen or any two other citizens, to be annually elected."

It is not known when the insane were first cared for at Bethlehem. The priory had in some manner come into the possession of ground which is now occupied by Trafalgar Square, and in that location, and presumably under the general supervision of Bethlehem, which possessed a house at Charing Cross called the Stone House, there were harbored "mad and distracted people, before such time as they were removed to the present hospital of Bethlehem without Bishopsgate." Stow, in his "Survey of London," in the second edition, published in 1603, describing the locality and surroundings of Charing Cross, says: "And so on to a lane that turneth to the parish house of St. Martin in the Fields. Then [*i. e.*, at the corner of the lane and the highroad] have ye an house wherein sometimes were distraught and lunatike people, of what antiquity founded, or by whom, I have not read, neither of the suppression, but it was said that some time a King of England, not liking such a kind of people to remain so near his palace, caused them to be removed further off to Bethlem without Bishopsgate, and to that hospital the said house by Charing Cross doth yet remain."

An investigation made in 1632 resulted in the following statement quoted by the author and upon which he rests his case that the insane were cared for at Bethlehem Hospital prior to 1403: "When the hospital was first employed to the use of distracted persons appeareth not. The first mention we find [in a search of the muniment room at Bridewell, 1632] of it to be employed so, was in the beginning of the regin of Richard II." In other words, in 1377 about, there were insane persons confined in Bethlehem Hospital. From that date then, to go back no farther, the hospital has been a refuge for the insane. Thus much of its "antiquity," as old Stow would put it, in the service of the mentally unbalanced is fairly well established.

From the first the affairs of Bethlehem appear to have been conducted in a somewhat haphazard manner. For a century, as we have seen, the hospital was in distress and poverty much of the time. After having been taken over by the Crown corruption, malfeasance, theft, too often characterized the conduct of those who were entrusted with its control. Like some experiences in this country, when political management and political favorites came in contact with the hospital, it and its inmates suffered. Much as we may deplore the unhappy condition of the inmates of the first Bethlehem, which was in every sense a Bedlam, the care of the patients and the general conduct of the hospital was in accordance with the general intelligence of the times. No one could have been expected to protest against the misery, squalor, filth and degradation which was the lot of the inmates of the hospital, when we recall how it was a show place for every idle visitor, and how the patients were jeered at and excited as bears were wont to be baited in a bear-pit to amuse the crowd.

In 1676 the new or second Bethlehem was opened in Moorfields, the site of the hospital being where Finsbury Circus now is. It had been carefully planned, but was unfortunately located over an old ditch which, in time, caused defects to appear in its walls. The architect is said to have planned the exterior after the Tuileries, which appears to have greatly incensed Louis XIV. In the new hospital the sexes were separated, which had not been always the case in the old one. The galleries or corridors were wide and out of these opened the cells or bedrooms of the patients. These rooms were provided with narrow, unglazed windows, high up in the wall.

The galleries were reserved, as a rule, for visitors, "who amused themselves by looking through the hatches of the cell doors and bandying unsavory jokes with the inmates of the cells." It does not appear therefore that new, and what were then called palatial, surroundings had brought with them new methods. "Visitors went to Bethlehem at Easter, Whitsun, or Christmas, very much as the uncouth rustic goes to the menagerie of a travelling circus, to poke the animals with an ash plant."

The story is a long one and it is most interesting—full of painful things as it is—but the reader must get the book and spend days in its perusal.

The second hospital was followed by the third or present Bethlehem hospital. A new building was found necessary by reason of the unsafe condition of the walls of the building in Moorfields, due to unstable foundations, and a change of location was desirable because houses and shops had begun to crowd around the hospital, depriving it of light and air.

The lands at Moorfields had been leased to the hospital by the Corporation of London for 999 years from 1674. An exchange was made for land in St. George's Fields, the unexpired term of the old lease being transferred to the new lease. Eleven acres and a little more in St. George's Fields were taken in exchange for two and one-half in Moorfields, and there the present hospital was built.

The foundation stone was laid on April 18, 1812, and the patients were transferred, one hundred and twenty-two in number, on the night of August 24, 1815, to their new quarters. In a few days a century will have passed since that change. In those fruitful years how many and how great have been the changes which have been wrought in the science and art of medicine and surgery, and particularly in psychiatric medicine. The story of Bethlehem and its progress for the century has been also the story of the progress of psychiatry. Not indeed until the medical point of view gained the ascendancy was there any real progress in the methods of Bethlehem. Not until 1852, under Dr. Hood, were methods introduced which were at all comparable with those now in vogue. From that time on the progress of the hospital has been steady. It has not been the great school of psychiatry that it might have been, but it has accomplished during the last half of the century a great work for the citizens of London.

We said when we started this notice that it was a far cry back to Simon FitzMary and the year 1247. What would be his feelings could he walk the wards of Bethlehem to-day and were he able to read the "Story" that Chaplain O'Donoghue has so well and so interestingly and convincingly told. Would he regret that the religious house which he had thought to found where prayers should be said for the repose of his soul, had been diverted from the original purpose to its present uses? Would he realize that religion sometimes finds its best expression in service? We wonder.

The book does not profess to be a history; much that makes history possible is lacking, but the " Story " is nevertheless good history and the author's conjectures and conclusions may be accepted as being as near the truth as may be hoped. The reviewer has spent many pleasant days in Bethlem and since his first visit to its wards, now a third of a century ago, has again and again renewed his acquaintance with its precincts, and the " Story," of which he has given but an imperfect review, has been to him like taking another stroll through its corridors or about its grounds. He hopes, nay believes, it will give almost as much satisfaction to all who read it.

VOL. LXXII. OCTOBER, 1915. No. 2

AMERICAN
JOURNAL OF INSANITY

A STUDY OF EUGENIC FORCES.

PARTICULARLY OF SOCIAL CONDITIONS WHICH BRING ABOUT THE SEGREGATION OF NEUROPATHIC PERSONS IN SPECIAL INSTITUTIONS.

BY A. J. ROSANOFF, M. D.,
Kings Park State Hospital, Kings Park, N. Y.

Whoever is somewhat familiar with the history of the care of the insane in this country or in other civilized countries is also familiar with the fact that the number of the insane in asylums and hospitals has been on the increase during the past several decades at a more rapid rate than the general population. This fact has led some to draw the conclusion that the incidence of insanity has increased among civilized nations; but even those who hold this view generally admit that at least a part of the increase of the insane in institutions has been due to the almost universal improvement in the kind and adequateness of facilities for the care of such patients; and from this it would seem that the increase of insane in institutions is to be regarded not necessarily with alarm, but, from the eugenic standpoint, as a salutary phenomenon.

It is important to note that the origin and remarkable extension of the practice of segregating neuropathic persons in special institutions has been wholly independent of any consciously eugenic movement; which would indicate that in modern civilized communities, even in the absence of such a movement, powerful social forces are at work which are eugenic in effect.

Now a new force is being added, the force of a consciously eugenic movement. It would seem that this movement might be strengthened through systematization and economy of effort, if we could estimate even but roughly the relative effectiveness of the various forces that have been at work in the past. It may be found that the energies of this movement might most profitably be expended in merely directing these forces in a more purposeful way rather than in promoting experimental legislation.

To attempt an analysis of conditions which have, independently of any eugenic movement, determined in the various states of the Union the extent of the practice of segregating neuropathic persons in special institutions is the main object of this study.

§1. Correlation Between Wealth Production and Number of Institution Inmates.

The increase in the number of neuropathic persons in institutions during the past several decades has occurred in rather close correlation with the increase in per capita wealth production also observed during the same period.

Thus, according to the enumerations of the Tenth, Eleventh, Twelfth and Thirteenth Censuses, there were on the dates of enumeration (1880-1910), respectively, 86.5, 126.6, 204.4, and 232.0 neuropathic persons[1] in special institutions per 100,000 of the general population. The per capita wealth production, according to statistics derived from the same sources, was $158.53, $197.30, $243.75, and $327.88 for the respective years.[2]

However, a part of this apparent increase in wealth production is undoubtedly but an expression of increased prices of commodities. Such prices are not apt to vary so much at any one time in different parts of the country as in the entire country in different decades. For this reason we computed the data separately for each of the four census years by groups of states according to per capita wealth production. The resulting statistics are given in Table 1, and the showing is such as to force us to assume the existence of a connection of some sort between the wealth production of communities and the practice of segregating neuropathic persons in special institutions.

---

[1] The expression "neuropathic persons" is applied here to the insane, epileptic, feeble-minded, and inebriate, and more particularly to those who are inmates of public or private institutions provided especially for their care.

[2] These figures, as well as others like them to be given farther on, have been obtained by dividing the sum of the gross values of all agricultural, mineral, and manufactured products, as furnished by the census for the given year and for the given state or group of states, as the case may be, by the total population.

Table 1.—Number of Neuropathic Persons in Institutions per 100,000 of the General Population in Census Years in Groups of States Distinguished According to per Capita Wealth Production.

Census Years.	Group 1.	Group 2.	Group 3.	Group 4.	Group 5.
	Per capita wealth production				
	Under $100	$100-$200	$200-$300	$300-$400	Over $400
1880....................	40.4	83.9	123.2	165.1	.....
1890....................	57.6	99.4	151.2	192.9	192.8
1900....................	95.8	123.3	227.2	300.0	295.6
1910....................	....	115.8	205.4	257.3	301.1

Perhaps it is hardly necessary to add that it is not all merely a matter of dollars and cents; the per capita value of the products of a community, being an indication of its wealth-producing power, is at the same time an indication of the diligence and purposefulness of its labors, its intelligence, resourcefulness and enterprise and, indirectly, of the general standard of its civilization and conditions of living.

A closer examination of the statistics in Table 1 will show at once that conditions other than per capita wealth production have also influenced the practice of segregating neuropathic persons in institutions. While the figures in the horizontal columns show a close correlation between per capita wealth production and relative number of neuropathic persons in institutions, the figures in the vertical columns show that in different decades between 1880 and 1910 groups of the same per capita wealth production present great variations in relative number of neuropathic persons in institutions, the trend being mainly in the direction of progressive increase. The inference is that during those decades some other factor or factors were at work simultaneously with that of per capita wealth production and exerting an influence in the same direction.

Further evidence is to be found in the statistics of individual states given in the full table of data appended at the end. The states of Colorado, Delaware, Illinois, Maine, Nebraska, New Hampshire, Oklahoma, Pennsylvania, Rhode Island, Tennessee, Texas, Utah and Wyoming have shown during the entire period of four decades a number of neuropathic persons in institutions far below that which would correspond with their per capita wealth production according to the correlation statistics in Table 1; the opposite is true for the states of California, Kentucky, Massachusetts, New York, Oregon and Virginia; while at various times marked fluctuations in both directions were shown by the states of Arizona, Connecticut, Michigan, Nevada, North Carolina, North Dakota, South Carolina, Washington, West Virginia and Wisconsin. Occasional and slighter fluctuations were, furthermore, shown by almost all the remaining states, only three, in fact, showing at all times practically an absence of such fluctuations, namely, the states of Florida, Maryland and Mississippi.

It would seem, therefore, that conditions, other than per capita wealth production, exerting an influence on the proportion of neuropathic persons in institutions, not only exist, but are probably numerous and heterogeneous, some effecting an increase, others a reduction.

§2. CORRELATION BETWEEN PERCENTAGE OF URBAN POPULATION AND NUMBER OF INSTITUTION INMATES.

The segregation of neuropathic persons in special institutions is essentially an urban practice; and if to-day it is found also in rural communities, it can easily be shown in every case to be the result of more or less direct urban influence. The history of the care of the insane in all civilized countries as well as the history of the establishment of individual institutions bears out this contention. The explanation is obvious: the problem of insanity in a given community must attain a certain magnitude before it may be expected to receive special attention from the public authorities or from the people themselves; the organization of elaborate special provisions will not be undertaken in order to facilitate the care of an occasional patient here and there; care at home, confinement in jail, placing in the almshouse, according to the special indications, is the rule under such conditions.

Accordingly, when we compare the conditions in various groups of states distinguished according to percentage of urban population, we find very consistently a correlation between percentage of urban population[3] and relative number of neuropathic persons in institutions. This is shown in Table 2.

TABLE 2.—NUMBER OF NEUROPATHIC PERSONS IN INSTITUTIONS PER 100,000 OF THE GENERAL POPULATION IN CENSUS YEARS IN GROUPS OF STATES DISTINGUISHED ACCORDING TO PERCENTAGE OF URBAN POPULATION.

Census Years.	Group 1.	Group 2.	Group 3.	Group 4.	Group 5.
	Percentage of urban population.				
	Under 15%	15-25%	25-50%	50-75%	Over 75%
1890	62.6	90.4	129.8	213.8	199.8
1900	99.3	138.9	223.8	296.9	343.8
1910	104.8	124.9	234.2	250.3	373.2

It will be noticed, by reference to the full table of data appended at the end, that the groups of states distinguished according to percentage of urban population differ but slightly from the groups distinguished according to per capita wealth production. (§1, Table 1.) It is, in fact, highly probable that throughout the land increased wealth production is itself in part but a result of the organization of urban centers, *i. e.*, centers of manufacture, commerce, enlightenment. Yet it can be shown that to some extent these two factors act independently.

The states of Montana, Nevada, North Dakota and South Dakota are peculiar in that they present a high per capita wealth production and at the same time a low percentage of urban population; thus they afford an opportunity of examining separately the influence of these two factors on the number of neuropathic persons in institutions.

In these four states as a group the per capita wealth production is $406.47, and the percentage of urban population is 17.7 (Thirteenth Census). The number of institution inmates per 100,000 of the general population is 161.4.

---

[3] The expression "urban population" is here used, as in the U. S. Census since 1890, to designate all that part of the general population which resides in cities, towns, or other incorporated places of 2500 inhabitants or more.

This group may be compared, firstly, with another wherein all states have a percentage of urban population below 25 and a per capita wealth production under $300; the states thus selected present, as a group, 19.1 per cent urban population and per capita wealth production of $175.91. The number of institution inmates per 100,000 of the general population is but 117.0. This difference is obviously not due to any difference in percentage of urban population, which, in fact, is even slightly lower for the first mentioned group: the correlation is here only with per capita wealth production.

The second comparison may be made with a third group of states wherein both percentage of urban population and per capita wealth production are high, being, respectively, above 25 per cent and above $300; the states thus selected present, as a group, 59.3 per cent urban population and per capita wealth production of $402.16. The number of institution inmates per 100,000 of the general population is 285.3. This difference is obviously not due to any difference in per capita wealth production, which, in fact, is somewhat higher in the first mentioned group; the correlation is here only with percentage of urban population.

§3. Correlation Between Amount of Illiteracy and Number of Institution Inmates.

Public education is a costly thing; therefore, adequacy of provision for it may be expected to run more or less parallel with per capita wealth production. Again, public education can be more conveniently provided under urban than under rural conditions; therefore, other things being equal, adequacy of provision for it may be expected to run more or less parallel with percentage of urban population. If, then, the states are classified in groups according to amount of illiteracy, as in Table 3, it will be found, by reference to the full table of data appended at the end, that the grouping follows closely those which are made according to per capita wealth production and percentage of urban population, excepting that it is in reverse order.

The figures in Table 3 show clearly that a reverse correlation exists between amount of illiteracy and proportion of neuropathic persons in institutions; but from what we have already seen, it would appear that this correlation is due to a large extent to the factors of per capita wealth production and percentage of urban population. On the other hand, it would seem equally certain, though perhaps hardly susceptible of actual demonstration, that illiteracy is itself a factor exerting at least an indirect influence. If an unduly large amount of illiteracy is in one generation a result of financial poverty and rural stagnation, it becomes for the next generation a cause of such conditions.

Table 3.—Per Capita Wealth Production, Percentage of Urban Population, and Number of Neuropathic Persons in Institutions per 100,000 of the General Population in Groups of States Distinguished According to Amount of Illiteracy.

	Group 1.	Group 2.	Group 3.
	Amount of Illiteracy.		
	Under 10%	10-20%	Over 20%
Wealth Production	$375.88	$175.27	$171.86
Urban Population	54.2%	20.0%	19.0%
Institution Inmates	262.9	128.5	113.3

However, the case is not so simple, being complicated by a highly important relationship which exists between illiteracy and neuropathic conditions, a matter of which a full consideration will not be undertaken here.

§4. CORRELATION BETWEEN ACCESSIBILITY OF INSTITUTIONS AND NUMBER OF INSTITUTION INMATES.

Nearly 50 years ago, Dr. Edward Jarvis published an admirable study of the part played by the factor of accessibility of institutions in determining the number of patients committed to them.[4] He observed that the number of patients committed from any locality to a hospital for the insane depended in a large measure on its distance from and means of transportation to the hospital. This principle was very well demonstrated between the years 1843 and 1865 by admission rates to the Utica State Hospital in New York from all the counties of the state excepting New York and Kings, which had hospitals of their own. Mr. Jarvis divided all the counties into four districts; the first district was Oneida County, in which the hospital was situated; the second district consisted of the 11 counties in the first tier surrounding Oneida County, which were mostly within 60 miles of Utica; the third district included 17 counties which were from 60 to 120 miles distant; and the fourth district included the most distant counties, being 120 and 350 miles from Utica. From these four districts the average annual admission rates in relation to the general population during the years mentioned were, respectively, 1 to 2772, 1 to 5820, 1 to 7351, and 1 to 11,535.

---

[4] Jarvis, E. "*Influence of Distance from and Nearness to an Insane Hospital on its Use by the People.*" American Journal of Insanity, Vol. 22. 1865-1866.

In a similar way, Dr. Jarvis examined statistics from insane hospitals in 21 other states and in Canada. The table in which he

TABLE 4.—POPULATION TO ONE PATIENT ANNUALLY SENT TO LUNATIC HOSPITALS (FROM A STUDY BY DR. EDWARD JARVIS).

State.	Years.	District 1.	District 2.	District 3.	District 4.	District 5.
Maine	1840–65	2,835	5,171	5,630	7,890	......
N. Hampshire	1842–65	2,440	3,470	6,280	......	......
Mass	1833–53	2,229	3,872	4,953	......	......
R. Island	1849–65	3,094	5,279	.....	......	......
New York	1843–65	2,772	5,820	7,351	11,535	......
New Jersey	1848–66	2,253	3,714	5,905	......	......
Pa	1850–57	6,061	10,793	17,686	23,748	......
Pa.-East	1857–66	5,884	10,497	17,414	53,629	......
Pa.-West	1857–66	3,650	10,585	22,382	......	......
Maryland	1850–64	7,034	10,122	23,009	......	......
Virginia	1828–59	5,472	12,314	21,579	24,433	25,105
N. Carolina	1856–60	4,875	6,433	9,707	10,982	45,779
Mississippi	1858	15,018[1]	7,026	13,890	16,151	21,276
Louisiana	1848–58	6,653	15,235	16,645	21,399	25,822
Tennessee	1852–59	3,923	8,318	13,164	20,440	15,826[1]
Kentucky	1824–55[2]	3,198	10,670	12,964	24,132	27,801
Ohio	1838–66	5,060	7,304	11,712	28,873	......
Illinois	1847–64	3,306	7.865	9,317	11,753	15,585
Michigan	1859–65	3,162	9,229	11,089	14,208	58,039
Missouri	1851–64[3]	5,910	12,553	13,989	15,983	26,933
Canada	1853–66	3,184	7,227	7,744	12,608	14,582
Nova Scotia	1858–64	467	1,023	1,768	3,057	......

[1] There is apparently something unexplained in the record of one county in each of these districts.

[2] Excluding 1844-47.

[3] Excluding 1861–63.

presented a summary of his findings is here reproduced (Table 4). His comments in this connection are of interest:

> In all these states the privileges of the hospitals are offered equally to the people of the counties. The patients of Oneida and Allegany counties in New York, of Mercer and Warren counties in New Jersey, of Dauphin and Venango counties in Pennsylvania, can enter on the same terms, enjoy the same advantages, and for the same price. The only difference is the burden of cost, care and labor of travel from their homes to the place of healing. And yet, the actual use of the hospitals by, and the practical value of these institutions to the people of the remote districts have been only one-fourth as great in New York, about one-third as great in New Jersey, and less than one-third as great in Pennsylvania as they have been in the districts near to them. Similar discrepancies in favor of the central counties and against the distant counties are seen to have existed in all the other states whose record has been obtained.

In the same study Dr. Jarvis analyzed the effect of multiplying hospitals in states. To quote him further:

> This principle has been remarkably manifested whenever and wherever a second hospital has been opened in any state and placed in a district remote from the one previously in operation. The people who sent a few patients to the distant institution now send many to the hospital which was brought to their neighborhood. The number of lunatics that found a place of healing was suddenly and permanently increased.
>
> In Massachusetts, the hospital at Worcester was the only state institution for the insane in the commonwealth from 1833 to 1854, when the second hospital was opened in Taunton, Bristol County, for the southeastern part of the state. The Worcester establishment continued to receive all the patients from the northern, central and western counties until 1858, when the third hospital was opened in Northampton, Hampshire County, for the western district. In both of these districts, there was a sudden and large increase of the insane, whose friends sought and used these new places of healing for them. The statistics show that following the opening of the new institutions the admission rates from the counties of Barnstable, Bristol, Dukes, Nantucket, and Plymouth increased by 42.9 per cent; and from the counties of Berkshire, Franklin, Hampshire, and Hampden by 52.7 per cent.
>
> In Ohio, the State Hospital at Columbus received patients from all the counties from 1838 to 1858, when the Northern Asylum at Newburgh, Cuyahoga County, and the Southern Asylum at Dayton, Montgomery County, went into operation and received patients from certain surrounding districts which were defined by the law.

Following the opening of the new institutions the admission rate from the northern district increased by 420 per cent, and from the southern district by 305 per cent!

Dr. Jarvis further shows that a similar effect is produced by railroads and other facilities of travel:

> Facilities of travel, navigable rivers, canals, railroads, public highways, public conveyances, which render communication easy and cheap, and intercourse familiar, and virtually diminish distance from the hospital, increase the ratio of patients that are sent to it. We, therefore, find that those counties which are situated along the course of rivers, canals, roads, etc., leading directly to the situation of the hospitals, have sent more patients to these institutions than other counties of equal population and at equal distances, but not favored with these facilities of communication.
>
> Ten counties in New York along the line of railroad, canal, etc., east and west of Utica, with easy means of travel, having a sum of annual populations equal to 15,622,250, sent 2151 patients to Utica (1 in 7263); while, during the same period, ten other counties, northeast and southwest of Utica, with no easy means of communication, with a sum of 7,840,684 annual populations, sent 647 patients, or 1 in 11,934 of their number, to the state hospital.

The experience of more recent times throughout the country affords ample corroboration of Dr. Jarvis' observations and conclusions, as may be seen from the statistics given in Table 5. The states in which the area in square miles per institution is great have relatively a small number of neuropathic persons in institutions, while the opposite is true of the states in which the area in square miles per institution is small.

TABLE 5.—PER CAPITA WEALTH PRODUCTION, PERCENTAGE OF URBAN POPULATION, AND NUMBER OF NEUROPATHIC PERSONS IN INSTITUTIONS PER 100,000 OF THE GENERAL POPULATION IN GROUPS DISTINGUISHED ACCORDING TO LAND AREA IN SQUARE MILES PER INSTITUTION.

Census Years.		Group 1.	Group 2.	Group 3.	Group 4.
		Area in sq. mi. per institution.			
		Under 2,000	2,000 to 10,000	10,000 to 40,000	Over 40,000
1890......	Wealth Production..	$358.69	$271.05	$139.12	$103.67
	Urban Population...	78.9%	48.5%	24.2%	16.2%
	Institution Inmates .	175.1	166.1	99.6	68.02
1900......	Wealth Production..	$360.43	$310.79	$190.46	$136.78
	Urban Population...	78.0%	53.7%	25.7%	18.8%
	Institution Inmates .	306.05	269.3	185.6	117.1
1910......	Wealth Production..	$418.66	$331.83	$254.18	$211.66
	Urban Population ..	68.5%	43.9%	28.1%	25.3%
	Institution Inmates.	323.6	220.9	161.3	119.05

Table 5 shows also that the factor of accessibility of institutions, like that of amount of illiteracy, runs somewhat parallel to those of per capita wealth production and percentage of urban population. It seems obvious, indeed, that the erection of institutions at short distances from one another in a state is but an expression of the financial prosperity and high state of social organization of the community. It would seem, further, that under such conditions the factor of accessibility of institutions can hardly be regarded as an independent one, but rather as merely constituting the mechanism by means of which the increase in the number of institution inmates is brought about.

Such is apparently the general import of the statistics; yet a detailed examination of the figures for individual states, as given in the full table of data appended at the end, would show that to some extent the appearance and influence of the factor of accessibility of institutions is independent of the other factors. That is to say, given certain conditions of wealth production, percentage of urban population and public education, institutions may or may not be erected at convenient distances from population districts, depending, perhaps, on the amount of special attention that the people or their representatives have given to the matter of the care of the insane, feeble-minded, or other neuropathic persons, such special attention being, in its turn, determined by the quality of the leadership in the community, as emanating from its governing authorities, charitable associations, medical and scientific bodies, etc.

Perhaps the most striking evidence of the independent influence of the factor of accessibility of institutions is presented by the conditions in Kentucky, Tennessee, Virginia and West Virginia, in 1910, in contrast with those in Georgia, Idaho, Louisiana, Oklahoma and Texas in the same year. In these two groups of states the factors of per capita wealth production and percentage of urban population do not differ materially, being, respectively, $194.03 and 21.9 per cent for the first group and $181.89 and 23.3 per cent for the second group. The difference, however, in the factor of accessibility of institutions is great: in the first group the average land area in square miles per institution is 6643.3, while in the second group it is 37,092.9; and we find that, in spite of the similarity of conditions as regards wealth production and percentage of urban population, the number of institution inmates per 100,000 of the general population differs very considerably, being 150.9 for the first group and 113.6 for the second.

§5. Correlation Between Intra-Mural Conditions and Number of Institution Inmates.—Insanity Laws.

Probably no factor is more obviously connected with the progressive increase in the number of neuropathic persons in institutions than that of improved intra-mural conditions. In times, not very long past, when the commitment of a person to an insane institution meant almost invariably his subjection to mechanical restraint, seclusion in a cell, and measures of punishment or discipline, with inadequate feeding, raiment and shelter, under conditions of revolting filth, with hardly any medical care, such commitment was, naturally, resorted to as but the last measure, justified only by extreme necessity, a measure greatly deplored as the worst calamity that could befall any one. With the gradual improvement of intra-mural conditions the popular horror of insane institutions has, in large measure, disappeared, so that to-day, in the states of the most advanced development, we find evidence of a different feeling, mainly in the shape of increasing numbers of voluntary admissions: patients themselves and their friends now have hope of being benefited by a sojourn in a state hospital.

Obvious as the influence of intra-mural conditions seems to be, it is at the same time rather imponderable and very difficult to subject to measurement and correlation with other phenomena. For present purposes statistics of per capita cost of maintenance in institutions have been selected as being, possibly, the most satisfactory index of intra-mural conditions among all the available data. It is freely admitted that it is at best but an indirect index and that its use introduces certain sources of error; the cost of commodities, prevailing wages, etc., vary in different parts of the country; the expense of heating is high in Northern and Central states, and low in Southern and Coast states; institutions of large size can be conducted at a lower per capita cost than those of small size, other things being equal; dishonest or incompetent management of an institution may result in very low intra-mural standards in comparison with other institutions, better managed, but at no higher per capita cost; finally, the statistics of different institutions are perhaps not strictly comparable on account of differences in methods of bookkeeping: what one institution reports as an item of maintenance expense another may report as one of construction or extraordinary repairs.

Nevertheless, it is self-evident that definite standards of intramural conditions correspond to certain minima of per capita cost of maintenance; therefore, when a certain per capita cost is reported by a given institution, we may know approximately the best that can be expected in such matters as quality and adequateness of rations and raiment, number of attendants in relation to that of patients, amusements and recreation, etc.

The necessary statistical data are given, for most of the states, in the Eleventh and Twelfth Censuses; the Tenth Census gives all disbursements of institutions, including those for construction and extraordinary repairs, but not the maintenance expenditures separately; the Thirteenth Census gives no statistics of cost.

The states for which the necessary data are available have been divided into three groups according to per capita cost of maintenance of patients in institutions, and the number of neuropathic persons in institutions per 100,000 of the general population has been calculated for each group. The resulting figures, given in Table 6, show plainly that a correlation exists between per capita expenditures for maintenance and number of institution inmates.

TABLE 6.—NUMBER OF NEUROPATHIC PERSONS IN INSTITUTIONS PER 100,000 OF THE GENERAL POPULATION IN GROUPS OF STATES DISTINGUISHED ACCORDING TO PER CAPITA COST OF MAINTENANCE OF INSTITUTION INMATES.

Census Years.	Group 1.	Group 2.	Group. 3.
	Annual per capita cost of maintenance in institutions.		
	Under $125	$125-$150	Over $150
1890	96.7	100.2	131.9
1900	129.7	198.3	277.6

There can be no doubt that to-day the influence of the factor of intra-mural conditions, as indicated by per capita cost of maintenance, is as potent as it was 10, 20, or more years ago.

To take a striking instance, the annual per capita cost of patients in the state of Rhode Island, according to the statistics furnished in the report of the superintendent of the state hospital for the insane at Howard for the year ending December 31, 1910, was $133.67. The per capita wealth production in that state, according to the Thirteenth Census, was $532.46; the percentage of urban population was 96.7; the area of the state being but 1067 square miles and the transportation facilities being very good, the hospital may be judged to be readily accessible to all parts of its district.

Rhode Island may be fairly compared with Connecticut, Massachusetts and New York, which, as a group, show a per capita wealth production of $427.47 and a percentage of urban population of 83.2. In these states the average per capita cost of maintenance in institutions in 1910 was $197.17, that is to say, by 47.5 per cent higher than in Rhode Island. As a result we find that the number of institution inmates per 100,000 of the general population was, in that year, 237.8 for Rhode Island and 396.5 for Connecticut, Massachusetts and New York, as a group.

We turn with interest to the report of the Rhode Island institution in the hope of gaining more direct information about its intra-mural conditions. The following passages quoted from the report convey some idea as to how the "economy" is accomplished:

> In the period of three years ending December 31, 1910, our daily average number has increased 141 patients. At the beginning of the three-year period of which I speak we were already beginning to feel stress from lack of space for patients. We have managed to house the additional accumulation of 141 patients by filling the proper day spaces with beds; we are fast approaching the 1200 mark. Another fact which must be borne in mind is that some of our buildings are wooden structures, fast falling into irreparable decay, and containing equipment long since obsolete. Physically these buildings are unsafe and unsanitary; add to these two latter facts the crowded state of these wards, as described above, and we have a condition created to which we may well look with apprehension.
>
> The recommendations are, that we replace these dilapidated wood buildings with proper modern construction. Our laundry facilities are entirely inadequate. We need a new laundry building this year. We can not

properly keep up with the demands upon the laundry at the present time and I fail to see how we can open the new reception hospital without this demand for increased laundry facilities being met. The need of an administration building for the entire hospital for the insane is greater than ever. Our small office space is crowded and cramped beyond measure.

There are many states in which provision for the insane is much poorer and less adequate than in Rhode Island. The example of Rhode Island has been selected because it affords a particularly clear demonstration of the cacogenic influences of bad intra-mural conditions; for in that state the lack of thoroughness of segregation of neuropathic persons cannot be ascribed to lack of means or to difficulties resulting from a large, thinly-settled area with imperfect transportation facilities, but apparently rather to a deliberate pursuit by the governing authorities of a cruel and short-sighted penny-wise policy.

Another feature of intra-mural conditions which hinders the segregation of neuropathic persons in special institutions is simply lack of room. Overcrowding exists in almost all institutions in this country to a greater or less extent; it seems to be the general practice of the legislative bodies of all states to ignore the recommendations of hospital superintendents, boards of administration, or other authorities who are charged with the duty of caring for the insane and who are best informed as to the needs, being in immediate contact with the problems. But in some states the conditions are extreme and thoroughly disgraceful.

Such an extreme instance is presented by the state of Louisiana, as may be judged from a rather remarkable statistical table published in the biennial report of the Board of Administrators. The data for this table have been collected by the superintendents of both the state asylums from the sheriffs of the various parishes of the state by correspondence. Of the 60 parish sheriffs in the state, only 36 responded to the letters of inquiry, so that the resulting statistics reveal only in part the existing conditions. Following is a summary of these statistics:

Number of persons in jails awaiting admission	139
Number who died in jails during the biennial period while awaiting admission	50
Number of applications for admission to either asylum	609

In some states it is the declared policy, embodied in the law, to limit the provision—such as it is in those states—to the care of certain variously selected groups of the insane and to require the carrying out of cumbersome procedures in each case to determine the patient's eligibility for admission and his claim to it. As furnishing a typical instance may be cited the law of the state of Arkansas.

Upon a written statement filed by any reputable citizen of the state with the county and probate judge alleging that any person is entitled to admission to the state hospital for the insane, the county or probate judge must appoint a time as soon as practicable to hear the testimony of witnesses, and must cause the insane person to be examined separately by two reputable, competent, and disinterested physicians, who shall severally present to the county judge a sworn statement of the result of their examinations. If the judge finds the person insane he must without delay transmit to the superintendent of the state hospital his decision in writing, with copies of the original statement filed with him by the citizen, and the statement of the physicians including interrogatories and answers. The superintendent of the state hospital must thereupon immediately notify the judge of his readiness to admit the insane person if there is room unoccupied. If there is no room, he must notify the judge, and return to him the documents in the case. But in such instances, the name and county of the insane person must be recorded at the hospital in the order in which the decision of the judge was received, and he is entitled to precedence over all who may apply for admission later.

All persons found to be insane, for whom application for admission to the state insane asylum is made, are classified as "acute," "chronic," "probably incurable," or "incurable." All cases of less than one year's duration from first recognized symptoms of insanity are classified as "acute"; all cases of one year's duration as "chronic"; all cases complicated with epilepsy, original imbecility or feeble-mindedness, deformities of skull from injuries, old age or paralysis as "probably incurable"; and all other cases as "incurable," provided that no person of either classification whether curable or not, and whether the imbecility or insanity be idiotic or congenital or not, may be refused admission as long as there is unoccupied room for patients in the hospital.

Insane persons found at large, and not in the care of some discreet person, must be arrested by any peace officer and taken before a magistrate of the county, city or town in which the arrest is made, who shall make the necessary orders to keep him in restraint until he can be sent to the insane hospital. If the insane person has no friends to whose custody the magistrate can commit him, he may order him to be confined in the county or city jail, giving immediate notice to the county judge or city attorney, whose duty it is to take the proper proceedings for having the insane person sent to the hospital.

When there is no available room in the hospital, the superintendent must, as soon as practicable, in order to make room for a patient suffering from an "acute" form of insanity, discharge some inmate belonging to the "incurable" class, if there is such, or one belonging to the "probably incurable" class if there is no one dischargeable from the fourth class, or one belonging to the "chronic" class if there is no one dischargeable from the third class. In making a selection for discharge, the superintendent must give preference to one who has been longest in the hospital, if not violent or dangerous to the community, or whose discharge will effect the least possible inconvenience or cost. No appeal may be had from the decision of the superintendent in matters of admission or discharge of inmates, except to the board of trustees of the asylum, who may direct the superintendent to admit or discharge any person under any circumstances not involving a violation of the law.

When by reason of recovery or necessity for the benefit of an insane person of the "acute" class the superintendent of the state hospital thinks proper to discharge any inmate, he must notify the county or probate judge of the county from which the inmate was committed, who shall then direct the removal of the inmate without delay to his guardian or home. If the person has no guardian or home he must be delivered to such party and place in the county as may be provided for his further custody and maintenance, if he be not recovered and capable of taking care of himself. An inmate of the hospital having recovered his reason may unofficially be removed from the asylum by consent of the superintendent, or by his friends without consent of the superintendent, or by direction of the board of trustees. But notice of removal must be sent at once to the county or probate judge of the county from which the person was removed or committed.[5]

§6. Significance of the Data Exhibited in the Preceding Sections.

The Financial Aspect.—The fact that the number of neuropathic persons in institutions is in correlation with per capita wealth production would indicate that this factor controls, in a measure, the kind and adequateness of the facilities possessed by states for the care of such persons. Yet, it can be shown that such control is, in the nature of things, not inevitable, and owes its existence merely to a fallacious financial policy.

The benefit that is gained for public welfare by the segregation of neuropathic persons instead of allowing them to remain at large is mainly in the shape of greater protection against vice and crime. This subject has been more fully considered elsewhere,[6] and will not be further referred to here, beyond pointing out that money spent in segregation is not without some balance on the credit side which results from the saving through diminution of the amount of vice and crime.

---

[5] The above digest of the insanity law of the state of Arkansas is quoted from "Summaries of Laws relating to the Commitment and Care of the Insane in the United States," prepared by John Koren and published by The National Committee for Mental Hygiene, 50 Union Square, New York. 1912.

But the benefits that hospitals and asylums afford are to be felt not only by the present generation, but also, and possibly even to a greater extent, by generations to come; it would seem fair, therefore, that a part of the large expense of segregation should be borne by them.

Large enterprises, whether of governments or of private corporations, are capitalized with the aid of public loans of long term, while capital that is otherwise available is used merely for current expenses of operation. Thus public schools, highways, canals, railroads, telegraph and telephone systems, manufacturing plants, power plants, mining equipments, etc., have been built with the aid of capital derived from issues and reissues of long-term bonds; and no one has questioned the equity of thus assuming debts to be paid by future generations. It is a curious fact that the establishment of institutions for neuropathic persons forms almost everywhere a unique exception. No state as yet possesses anything like adequate facilities for the care of its neuropathic persons. Yet every state state could, without any added expenditure, easily double or treble its facilities with the aid of bond issues and thus make funds that are now expended for construction available for the maintenance of the increased number of its wards. In New York State alone the total legislative appropriations of special funds for new construction in the state hospitals and charitable institutions in the year 1912 was $3,210,304; while the appropriations desired for similar purposes at the 1913 session of the legislature were $5,747,849.50.[7]

If the present generation could have the choice between having to pay for the maintenance of a large number of neuropathic persons and having merely to pay off the matured bonds issued by a preceding generation for the establishment of facilities of prevention, there would be no question as to its preference; but it has not that choice, for past generations acted against its preference. And should the present generation decline to incur a bond indebtedness to be paid off in the future and thus allow neuropathic persons to remain at large for lack of room in the institutions, its action would be similarly against the preference of future generations.

---

[6] Rosanoff, A. J. "A Program of Psychiatric Progress." Medical Record, February 20, 1915.

[7] Annual Report of the Comptroller of the State of New York, January 5, 1913.

No other enterprise that the state might undertake could more fully justify the issuance of long-term bonds than that of the construction of adequate facilities for the prevention, treatment and custody of mental disorder.

The Factor of Urban Population.—Among the features of modern civilization are, as all know, a stream of migration from country to city, organization of new urban centers, and often the abandonment of rural pursuits for those of manufacture, commerce, etc. The special advantages and opportunities to be found in cities have lured many of the most ambitious and most capable men and women away from farms and villages. This movement has aroused considerable alarm, but it would seem clear that, from the eugenic standpoint, it has a beneficial aspect, since, as has been shown in §2, the practice of segregating neuropathic persons in institutions increases with the percentage of urban population.

Are rural conditions, then, destined forever to be cacogenic? Are rural communities to continue indefinitely to lose so many of their best forces?

The great institutions of modern civilization—public schools, newspapers, improved means of transportation and communication, municipal sanitation, hospitals, corporate enterprises, are of urban origin, and it is not surprising that rural communities have remained somewhat behind. But the very growth of cities must bring with it eventually a general elevation of rural standards as well; the more disproportionate this growth becomes, the higher will rise the prices of agricultural products, so that rural pursuits will gradually develop a new attractiveness. Such, at least, has been the experience of the past: "A large part of the extraordinary increase in the total value of farm crops between 1899 and 1909 is attributable to higher prices. While the acreage of crops with acreage reports increased only 9.9 per cent, the value of such crops increased 83.3 per cent. The percentages of increase in the quantity of the various individual crops were in nearly all cases much less than the percentages of increase in value. Thus, for all cereals taken together, the production increased only 1.7 per cent, while the value increased 79.8 per cent; for hay and forage the production increased 23 per cent and the value 70.2 per cent; and for cotton (including cotton seed), the production increased 11.7 per cent and the value 122.5 per cent."[8]

Furthermore, it is a matter not alone of quantitative relation between demand and supply: urban demands are growing more exacting also as to quality of agricultural products. Milk must be from healthy cows, bacteriologically innocuous, carefully prepared for shipping, chemically up to certain legal specifications, often even pasteurized; it will command a higher price if regularly inspected by experts and certified. Fruits must be skilfully cultivated, carefully selected, and attractively packed to meet the demands of urban markets.

To supply products in ever increasing quantities and of rising quality in response to urban demands will eventually become a task no longer for an illiterate peasantry but for a working force fully as intelligent, as enterprising and as well trained as any that is required for the production of the finest manufactured products. The farmer, like the manufacturer, will make increasing use of labor-saving machinery and of scientific methods of work and management; he will market superior products and receive higher prices; he will demand shorter hours of labor, and, unlike his peasant predecessor, insist on standards of living as high as those of the man in the city; he will refuse to get along without a safe and ample water supply, sanitary facilities for sewage disposal, efficient heating and lighting equipments, and without good schools, hospitals, roads, telephones, means of recreation. The insane and feeble-minded will not be at large, or doing chores on the farmsteads, but will be cared for in institutions to the same extent as those of urban communities.

A great deal of urban growth, however, will still have to take place more or less at the expense of the country before the attractiveness of rural and urban pursuits, regarded from the economic standpoint, will have become equalized, and rural standards of living and civilization are raised to the level of urban standards.

---

[8] Abstract of the Thirteenth Census, p. 363.

By some, the continued, almost universal, increase of the cost of living is regarded with anxiety, as an abnormal social phenomenon; but it seems to us that this increase is but a sign of rural progress. Heretofore rural labor has been, perhaps to a greater extent than any other kind of labor, unfairly exploited by the nation; and it is still being thus exploited. In ultimate results to the nation such exploitation cannot be beneficial. We shall know that it has ceased, that agricultural labor is as well rewarded as other labor, that rural living conditions are as attractive as urban ones, that a fair balance has established itself, when the stream of migration cityward has ceased.

The Factor of Illiteracy.—Probably no other factor is so potent in its influence on standards of living and civilization as is that of public education. An undue prevalence of illiteracy in a community is sure to be accompanied by a low state of all institutions of civilization, including facilities for the segregation of neuropathic persons: it is a cacogenic factor.

Conversely, money spent for public education is spent, at least indirectly or in ultimate effect, in an eugenic cause.

The Factors of Accessibility of Institutions and Intra-mural Conditions.—The factors of accessibility of institutions and intra-mural conditions are apt to work against each other in a peculiar way. A large number of small institutions scattered throughout a state makes, of course, for accessibility. But the maintenance of small institutions is expensive; therefore, given a certain amount of money available, the same number of patients can be maintained under better intra-mural conditions in a small number of large institutions than in a larger number of small ones.

In densely populated areas or in the proximity of large cities the choice is obviously in favor of large institutions, for in such localities multiplying the number of institutions would result in no gain in accessibility, but only in loss of economy in administration. But even for large and sparsely-settled areas the factor of nearness to the population districts is becoming less important with the improvement and extension of steam and electric railroads, canals, river navigation, highways, automobile travel, etc. However, even with the best transportation facilities, no institution can be considered sufficiently accessible to its population districts which is not within 50 miles of them.

In many states the law endeavors to distinguish the insane from idiots, imbeciles, and epileptics, often making separate provisions for the classes of neuropathic persons thus distinguished. Much can be said in favor of such separate provisions, but it may readily be seen that, from the standpoint of accessibility of institutions, the disadvantages would outweigh the advantages in large and sparsely-settled areas.

In densely-settled states, where it is both practicable and advantageous to make such separate provisions, the prevailing custom to hold by legal commitment only " insane " patients in state hospitals and not inmates of institutions for the feeble-minded or epileptic, constitutes a serious drawback. This is, however, not unavoidable; very recently, for instance, a law was enacted in New York providing for the commitment, when necessary, of epileptic and feeble-minded persons to special institutions established for their care by a procedure similar to that employed for the commitment of insane persons to the state hospitals.

It follows from the above that a general policy could hardly be formulated which would best govern the factors of accessibility of institutions, intra-mural conditions, and specialization as to classes of cases cared for, under all conditions. In some cases, a number of small institutions, not too far apart, and without special restrictions as to classes of patients admitted, may be preferred in spite of high expense of maintenance; in other cases a smaller number of large institutions, each organized for the care of special classes of patients, may be found more economical and in every way more desirable.

Laws Pertaining to the Care of Neuropathic Persons.—A comparison of the laws of the various states reveals the general fact that those states which have the greatest number of neuropathic persons in institutions in proportion to their general population have also the simplest legal procedures for the admission of patients, and, *vice versa,* those which have the least numbers have also the most cumbersome legal procedures and the greatest number of obstacles and restrictions. The tendency throughout the country in recent times has been towards a simplification of the legal procedure, and now, in the leading states, cases may be admitted to insane hospitals on voluntary application, at any time, without special formality.

Psychiatrists are looking forward to even greater facility of obtaining treatment for cases of mental derangement in the future in psychopathic wards to be established in connection with general hospitals:

> The details of transfer from the psychopathic ward to the large state institutions should be made as simple as possible. Transfer should be made effective on a certificate of two properly qualified physicians and the matter should not have to come into court at all unless it is brought there by the patient, his relatives, or some friends on his behalf. I would not close the courts to the so-called insane by any means, but I would not insist on a legal process, whether the patient wanted it or not; I would not insist, so to speak, on cramming an alleged constitutional right down the patient's throat at the expense of his life. We see to-day this process of commitment going on where nobody wants it. The patient does not want it, the patient's friends and relatives do not want it, and anybody who stands and watches it proceed recognizes on the face of it that it is a farce. I would, therefore, proceed in the matter of commitment in the simplest way. Leave the courts accessible to the patient if he wants to appeal for relief, and it will be surprising how rare such appeals will be.[9]

A study of the practice of segregating neuropathic persons in institutions, as revealed by its growth throughout the country in the past few decades and by its extent in the various states, shows plainly that where it is least controlled by legislation there it is most successful. A state needs but to provide ample, well-conducted and readily accessible institutions; for the rest, contrary to the commonly expressed notion, forced segregation is far less effective than free or voluntary segregation. The interests of eugenics are best served where detention by law is reduced to a minimum.

It is necessary, above all, to abolish entirely the horror of institutions that still lingers in the minds of the public even in the most advanced states. This has already been accomplished in part by the general improvement of intra-mural conditions. Perhaps of equal importance is a liberal practice in the matter of discharge; for, in spite of possibly ideal intra-mural conditions, any grounds for fear of permanent or indefinite detention without obvious indications will naturally serve to impede the stream of admissions to institutions. Nobody will willingly seek admission to an institution or send a relative or a friend there if there is any likelihood of that step proving to be an irrevocable one. Theoretically the permanent forced segregation of every neuropathic person might be assumed to be most effective; but practically all experience shows that the greatest freedom and liberality, the least force, are the conditions of the greatest degree of success as regards extent of segregation accomplished.

---

[9] White, Wm. A. "*Dividing Line between General Hospital and Hospital for Insane.* The Modern Hospital, March, 1914.

Unlike other eugenic measures that have been proposed, segregation is an old practice which has been thoroughly tried out and to which no objections have been raised, whether on religious, legal, or humanitarian grounds; it has had of late a remarkable growth; and it may be anticipated that improvement of methods of financing will create vast possibilities of further growth.

In the past the objects of segregation have been to protect society against anti-social conduct of neuropathic persons, to organize public charity on an efficient basis, and to provide medical treatment for cases requiring it. That it also serves the ends of eugenics is but an added argument in its favor; but whatever it accomplishes for eugenics must ever remain a by-product, no matter how highly we may value it. In other words, in no case could forced segregation be advocated with propriety and with social benefit merely because a diagnosis of some neuropathic condition has been made and on eugenic grounds alone; in the absence of a need of protection for society, or of an appeal for aid or for medical treatment, indications for segregation do not exist.

This point of view would eliminate the practically unanswerable question in eugenics, What persons should be selected for segregation? The selection is made automatically according to the standards and exactions of every environment.

There can be no doubt that many persons, say, in Arkansas, New Mexico or Oklahoma, who are at large and whom, moreover, their fellow citizens do not consider proper subjects for an insane hospital, would be promptly committed if they took up their residence in, say, Massachusetts, New York or Connecticut; and some would apply for voluntary admission. And it is equally certain that under still more highly developed conditions many persons who are now at large even in the last mentioned states would be cared for in institutions.

Persons are placed in institutions when, by reason of some mental defect or disturbance, their adaptation to their environment fails. The environment of a highly organized community with high standards of living is, of course, more exacting than that of a community characterized by a more primitive organization and lower standards.

Whatever may be one's theoretical conception of neuropathic conditions, the line of division between these conditions and the normal condition, as it is indicated by the practice of communities, is a shifting one, moving from the abnormal toward the normal extreme with the progress of civilization and the concomitant elevation of social standards.

One may well question, therefore, whether even theoretically any but a provisional and temporary definition of neuropathic conditions could be formulated. One who believes in indefinite possibilities of human progress, not only sociologically but also by organic evolution, may well imagine a state in the future wherein the general moral, intellectual and artistic standards would be so high that many persons such as are to-day active and even influential in politics, in commerce, or in society, and are but rarely picked out for segregation in asylums or penal institutions, would then be so far below the average as to be considered abnormal and not to be tolerated at large.

As a community makes progress in general civilization, so will it make progress in eugenic practice; no theoretical standards can be forced on any community; and no standards of one community can be suddenly forced on any other that is in a different stage of social organization.

§7. SUMMARY.

The number of the insane in asylums and hospitals has been on the increase during the past several decades at a more rapid rate than the general population.

In the United States there were in 1880, 86.5 institution inmates per 100,000 of the general population; by 1910 the number had risen to 232.0.

At any given time the number differs widely in the various states.

In 1910 there were in the state of Oklahoma 67.0 institution inmates per 100,000 of the general population, while in the state of Massachusetts there were 413.4.

To attempt an analysis of conditions which have, independently of any eugenic movement, determined in the various states of the Union the extent of the practice of segregating neuropathic persons in special institutions is the main object of this study.

The number of neuropathic persons in institutions per 100,000 of the general population, in the United States as a whole at different times, and in the various states at any one time, is in direct correlation with the following factors: (1) per capita wealth production ; (2) percentage of urban population; (3) accessibility of institutions; and (4) intra-mural conditions, as indicated by per capita cost of maintenance in institutions.

It is in reverse correlation with the factor of percentage of illiteracy.

The controlling influence of the factor of per capita wealth production would seem to be not inevitable, in the nature of things, but rather due to a fallacious financial policy generally in vogue.

The benefits of segregation are to be felt not only by the present generation, but also, and probably to a greater extent, by generations to come; it would seem fair, therefore, that a part of the large expense of segregation should be borne by them.

Every state could easily double or treble its facilities for segregation with the aid of bond issues and thus make funds that are now expended for construction available for the maintenance of the increased number of its wards.

As regards the factor of percentage of urban population, the stream of migration from country to city, which is so characteristic of modern times and which has been by many greatly deplored, seems, from the eugenic standpoint, to have a beneficial aspect; it is undoubtedly a cause of the almost universal rise in prices of agricultural products and thus a growing influence for the elevation of rural standards.

An undue prevalence of illiteracy in a community is a cacogenic factor.

Conversely, money spent for public education is spent, at least indirectly or in ultimate effect, in an eugenic cause.

The factors of accessibility of institutions and intra-mural conditions are apt to work against each other in a peculiar way: a general policy could hardly be formulated that would best govern them.

The opinion is offered that no institution is sufficiently accessible to its population districts which is not within 50 miles of them.

In some cases a number of small institutions, not too far apart, and without special restrictions as to classes of patients admitted, may be preferred in spite of high expense of maintenance. In other cases, especially in densely populated districts, a smaller number of large institutions, each organized for the care of special classes of patients, may be found more economical and in every way more desirable.

A comparison of the laws of the various states reveals the general fact that those states which have the greatest numbers of neuropathic persons in institutions in proportion to their general population have also the simplest legal procedures for the admission of patients, and, *vice versa,* those which have the least numbers have also the most cumbersome legal procedures and the greatest number of obstacles and restrictions.

A state needs but to provide ample, well conducted and readily accessible institutions; for the rest, contrary to the commonly expressed notion, forced segregation is far less effective than free or voluntary segregation. The interests of eugenics are best served where detention by law is reduced to a minimum.

It is held that in no case could forced segregation be advocated with propriety and with social benefit merely because a diagnosis of some neuropathic condition has been made and on eugenic grounds alone: in the absence of a need of protection for society, or of an appeal for aid or for medical treatment, indications for segregation do not exist.

This point of view would eliminate the practically unanswerable question in eugenics, What persons should be selected for segregation? The selection is made automatically according to the standards and exactions of every environment.

TABLE OF STATISTICAL DATA WHICH FORM THE BASIS OF THIS STUDY.

State.	Area in square miles.	Census year.	Total population.	Total value of agricultural, mineral, and manufactured products.	Per capita wealth production.	Total urban population.	Percentage of urban population.	Number of institutions.	Area in square miles per institution.	Per capita cost of maintenance in institutions.	Number of institution inmates.	Inmates per 100,000 of population.
Alabama..........	51,279	1880	1,262,505	$ 71,104,466	$ 56.32	.....	..	..	.....	.....	373	29.5
		1890	1,513,017	127,295,164	84.13	152,235	10.1	1	51,279	$103.94	1,014	67.0
		1900	1,828,697	189,496,850	103.62	216,714	11.9	1	51,279	119.43	1,603	82.6
		1910	2,138,093	336,351,010	157.31	370,431	17.3	2	25,639	.....	2,039	95.4
Arizona	113,810	1880	40,440	3,770,482	93.24	.....	..	..	.....	.....	..	..
		1890	59,620	9,242,234	155.02	8,302	9.4	1	113,810	295.06	65	108.3
		1900	122,931	39.509,661	321.40	19,495	15.9	1	113,810	167.47	224	165.5
		1910	204,354	97,167,880	475.49	63,260	31.0	1	113,810	.....	337	165.2
Arkansas..........	52,525	1880	802,525	50,585,955	63.03	.....	..	..	.....	.....	..	..
		1890	1,128,179	76,355,017	67.68	73,159	6.5	1	52,525	164.73	390	34.6
		1900	1,311,564	127,687,562	97.36	111,733	8.5	1	52,525	.....	667	48.4
		1910	1,574,449	228,474,471	145.11	202,681	12.9	1	52,525	.....	1,092	69.4
California........	155,652	1880	864,694	195,097,637	225.63	.....	..	..	.....	....	2,010	232.4
		1890	1,208,130	320,136,640	264.99	589,464	48.6	5	31,130	183.21	3,372	279.1
		1900	1,485,053	463,435,772	312.07	777,699	52.4	6	25,942	144.41	6,284	397.1
		1910	2,377,549	812,211,980	341.62	1,469,739	61.8	6	25,942	.....	7,506	315.6
Colorado..........	103,658	1880	194,327	39,636,309	203.97	.....	..	..	.....	.....	34	17.5
		1890	412,198	96,743,625	234.70	185,905	45.0	1	103,658	245.52	239	58.0
		1900	539,700	176,481,999	327.00	260,651	48.3	1	103,658	139.09	768	131.3
		1910	799,024	258,142,562	323.07	404,840	50.7	4	25,915	.....	1,263	158.1
Connecticut.......	4,820	1880	622,700	204,942,510	329.12	.....	..	..	.....	.....	753	120.9
		1890	746,258	269,350,835	360.94	623,161	83.5	3	1,607	139.35	1,673	224.3
		1900	908,420	382,527,013	421.09	792,595	87.2	3	1,607	140.97	3,050	315.6
		1910	1,114,756	527,467,331	473.17	999,839	89.7	6	803	.....	3,873	347.4

TABLE OF STATISTICAL DATA WHICH FORM THE BASIS OF THIS STUDY—(Continued).

State.	Area in square miles.	Census year.	Total population.	Total value of agricultural, mineral, and manufactured products.	Per capita wealth production.	Total urban population.	Percentage of urban population.	Number of institutions.	Area in square miles per institution.	Per capita cost of maintenance in institutions.	Number of institution inmates.	Inmates per 100,000 of population.
Delaware.........	1,965	1880	146,608	$ 27,017,246	$184.28	.....	..	..	.....	.....	0	0
		1890	168,493	44,560,192	264.46	71,067	42.2	1	1,965	.....	142	84.5
		1900	184,735	55,126,874	298.41	85,717	46.4	1	1,965	$162.15	353	185.2
		1910	202,322	66,004,060	326.23	97,085	48.0	1	1,965	.....	441	218.3
Florida...........	54,861	1880	269,493	12,985,840	48.19	.....	..	..	.....	.....	76	28.3
		1890	391,422	30,447,948	77.79	77,358	19.8	1	54,861	199.00	202	51.7
		1900	528,542	58,063,153	109.86	107,031	20.3	1	54,861	105.59	713	123.4
		1910	752,619	123,979,317	164.73	219,080	29.1	1	54,861	.....	849	112.7
Georgia..........	58,725	1880	1,542,180	104,092,650	67.50	.....	..	..	.....	.....	626	40.6
		1890	1,837,353	155,277,437	84.51	257,472	14.0	1	58,725	132.49	1,491	81.2
		1900	2,216,331	214,076,361	96.59	346,382	15.6	1	58,725	125.27	2,839	120.7
		1910	2,609,121	457,069,826	175.18	538,650	20.6	2	29,363	.....	3,132	120.0
Idaho............	83,354	1880	32,610	4,730,834	145.07	.....	..	..	.....	.....	0	0
		1890	84,385	13,630,259	161.52	0	0	1	83,354	402.54	63	75.0
		1900	161,772	30,286,828	181.04	10,003	6.2	1	83,354	156.94	255	135.6
		1910	325,594	84,454,431	259.39	69,898	21.5	2	41,677	.....	388	119.0
Illinois..........	56,043	1880	3,077,871	629,098,661	204.39	.....	..	..	.....	.....	2,501	81.3
		1890	3,826,351	1,110,509,610	290.23	1,710,172	44.7	6	9,341	161.10	5,208	136.1
		1900	4,821,550	1,643,614,189	340.89	2,616,368	54.3	9	6,227	131.39	10,890	210.3
		1910	5,638,591	2,566,493,668	455.17	3,476,929	61.7	9	6,227	.....	14,104	250.1
Indiana..........	36,045	1880	1,978,301	265,512,652	134.21	.....	..	..	.....	.....	969	49.0
		1890	2,192,404	331,289,293	151.11	590,039	26 9	2	18,023	191.19	2,070	94.4
		1900	2,516,462	610,795,096	242.72	862,689	34.3	5	7,209	165.39	5,394	204.8
		1910	2,700,876	930,957,806	344.69	1,143,835	42.4	8	4,506	.....	5,880	217.7

TABLE OF STATISTICAL DATA WHICH FORM THE BASIS OF THIS STUDY—(Continued).

State	Area in square miles.	Census year.	Total population.	Total value of agricultural, mineral, and manufactured products.	Per capita wealth production.	Total urban population.	Percentage of urban population.	Number of institutions.	Area in square miles per institution.	Per capita cost of maintenance in institutions.	Number of institution inmates.	Inmates per 100,000 of population.
Iowa............	55,586	1880	1,624,615	$210,312,480	$129.45	.....	..	..	.....	.....	1,080	66.5
		1890	1,911,896	294,664,095	154.12	405,762	21.2	7	7,941	$200.38	2,453	128.3
		1900	2,231,853	539,705,829	241.82	572,386	25.6	5	11,117	165.09	5,366	228.7
		1910	2,224,771	856,496,098	384.98	680,054	30.6	34	1,635	.....	6,791	305.2
Kansas..........	81,774	1880	996,096	85,317,025	85.65	.....	..	..	.....	.....	319	32.1
		1890	1,427,096	211,225,866	148.01	272,201	19.1	3	27,258	169.77	1,367	95.8
		1900	1,470,495	392,725,225	267.07	330,903	22.5	3	27,258	135.11	2,841	191.2
		1910	1,690,949	721,668,241	426.78	493,790	29.2	4	20,444	.....	3,332	197.0
Kentucky.........	40,181	1880	1,648,690	140,642,767	85.31	.....	..	..	.....	.....	1,535	93.1
		1890	1,858,635	197,380,286	106.20	356,713	19.2	4	10,045	143.63	2,145	115.4
		1900	2,147,174	285,966,573	132.72	467,668	21.8	4	10,045	150.83	3,247	144.3
		1910	2,289,905	446,317,557	194.91	555,442	24.3	5	8,036	.....	3,821	166.8
Louisiana........	45,409	1880	939,946	67,088,705	71.38	.....	..	..	.....	.....	450	47.9
		1890	1,118,587	112,630,666	100.69	283,845	25.4	2	22,705	.....	608	54.3
		1900	1,381,625	194,128,312	140.51	366,288	26.5	1	45,409	99.24	1,585	107.4
		1910	1,656,388	317,761,664	191.84	496,516	30.0	3	15,136	.....	2,158	130.3
Maine...........	29,895	1880	648,936	103,055,567	158.81	.....	..	..	.....	.....	403	62.1
		1890	661,086	125,865,213	190.39	298,604	45.2	1	29.185	.....	612	92.6
		1900	694,466	168,131,088	242.10	337,390	48.6	2	14,948	286.79	885	125.3
		1910	742,371	237,576,131	320.02	381,443	51.4	3	9,965	.....	1,320	177.9
Maryland	9,941	1880	934,943	138,836,681	148.50	.....	..	..	.....	.....	912	97.5
		1890	1,042,390	203,375,404	195.10	495,702	47.6	4	2,485	.....	1,459	140.0
		1900	1,188,044	293,690,121	247.20	591,206	49.8	5	1,988	.....	2,686	216.6
		1910	1,295,346	383,066,404	295.73	658,192	50.8	12	828	.....	3,530	272.6

TABLE OF STATISTICAL DATA WHICH FORM THE BASIS OF THIS STUDY—(Continued).

State	Area in square miles.	Census year.	Total population.	Total value of agricultural, mineral, and manufactured products.	Per capita wealth production.	Total urban population.	Percentage of urban population.	Number of institutions.	Area in square miles per institution.	Per capita cost of maintenance in institution.	Number of institution inmates.	Inmates per 100,000 of population.
Massachusetts....	8,039	1880	1,783,085	$ 657,335,369	$368.65	.....	..	..	.....	.....	3,287	184.4
		1890	2,238,943	919,933,537	410.88	2,003,854	89.5	13	618	$191.37	4,321	193.0
		1900	2,805,346	1,082,169,118	385.75	2,567,098	91.5	12	670	164.59	10,112	336.1
		1910	3,366,416	1,558,108,975	462.84	3,125,367	92.8	16	502	.....	13,915	413.4
Michigan.........	57,480	1880	1,636,937	256,259,343	156.55	.....	..	..	.....	.....	1,122	68.5
		1890	2,093,889	432,482,620	206.52	730,294	34.9	5	11,496	169.29	2,797	133.6
		1900	2,420,982	553,649,121	228.69	952,323	39.3	6	9,580	195.91	5,946	236.1
		1910	2,810,173	999,143.327	355.55	1,327,044	47.2	10	5,748	.....	7,685	273.5
Minnesota........	80,858	1880	780,773	125,789,967	161.11	.....	..	..	.....	.....	727	93.1
		1890	1,301,826	274,813,846	211.10	443,049	33.8	3	26,953	167.92	2,159	165.8
		1900	1,751,394	449,602,730	256.71	598,100	34.1	6	13,476	148.13	4,958	259.6
		1910	2,075,708	740,771,989	357.21	850,294	41.0	6	13,476	.....	5,938	286.0
Mississippi........	46,362	1880	1,131,597	71,220,146	62.94	.....	..	..	.....	.....	387	34.2
		1890	1,289,600	92,089,976	71.41	69,966	5.4	2	23,181	138.33	682	52.9
		1900	1,551,270	142,923,669	92.13	120,035	7.7	2	23,181	114.25	1,493	90.8
		1910	1,797,114	248,017,348	138.01	207,311	11.5	2	23,181	.....	1,978	110.1
Missouri..........	68,727	1880	2,168,380	266,740,881	123.01	.....	..	..	.....	.....	1,350	62.3
		1890	2,679,184	450,244,592	168.05	856,966	32.0	6	11,455	198.20	2,417	90.2
		1900	3,106,665	625,074,410	201.20	1,128,104	36.3	6	11,455	137.28	5,353	164.2
		1910	3,293,335	1,019,888,341	309.68	1,398,847	42.5	12	5,727	.....	6,680	202.9
Montana..........	146,201	1880	39,159	8,572,425	218.91	.....	..	..	.....	.....	44	112.8
		1890	132,159	45,518.763	344.42	38,787	27.1	1	146,201	.....	172	130.3
		1900	243,329	113,957,866	468.33	84,554	34.7	1	146,201	235.35	543	194.4
		1910	376,053	190,750,965	507.24	133,420	35.5	2	73,100	.....	746	198.4

TABLE OF STATISTICAL DATA WHICH FORM THE BASIS OF THIS STUDY—(Continued).

State	Area in square miles.	Census year.	Total population.	Total value of agricultural, mineral, and manufactured products.	Per capita wealth production.	Total urban population.	Percentage of urban population.	Number of institutions.	Area in square miles per institution.	Per capita cost of maintenance in institution.	Number of institution inmates.	Inmates per 100,000 of population.
Nebraska.........	76,808	1880	452,402	$ 44,352,000	$ 98.04	.....	..	..	.....	.....	175	38.7
		1890	1,058,910	160,132,430	151.22	291,641	27.4	4	19,202	$312.06	757	71.5
		1900	1,066,300	306,834,879	287.76	252,702	23.7	3	25,603	134.92	1,873	175.5
		1910	1,192.214	518,560,203	434.96	310,852	26.1	4	19,202	.....	2,436	204.4
Nevada..........	109,821	1880	62,266	22,353,984	359.01	.....	..	..	.....	.....	0	0
		1890	45,761	13,954,597	304.94	16,024	33.8	1	109,821	234.63	172	373.9
		1900	42,335	11,920,442	281.57	7,195	17.0	1	109,821	185.44	200	472.4
		1910	81,875	47,616,034	581.57	13,367	16.3	1	109,821	.....	230	280.5
New Hampshire..	9,031	1880	346,991	87,894,973	253.31	.....	..	..	.....	.....	288	83.0
		1890	376,530	100,451,763	266.78	192,479	51.1	1	9,031	244.15	342	90.7
		1900	411,588	141,815,608	344.56	226,269	55.0	2	4,516	281.57	560	132.0
		1910	430,572	193,641,380	449.73	255,099	59.2	3	3,010	.....	1,053	244.3
New Jersey.......	7,514	1880	1,131,116	287,937,194	254.56	.....	..	..	.....	.....	1,632	144.3
		1890	1,444,933	391,846,856	271.19	876,638	60.7	4	1,879	217.53	1,860	128.7
		1900	1,883,669	662,011,864	351.45	1,329,162	70.6	4	1,879	....	5,401	264.7
		1910	2,537,167	1,214,081,856	478.52	1,907,210	75.2	14	537	.....	7,032	277.2
New Mexico.....	122,503	1880	119,565	3,624,511	30.31	.....	..	..	.....	.....	0	0
		1890	153,593	7,912,779	51.52	9,970	6.2	..	.....	.....	0	0
		1900	195,310	18,447,483	94.45	27,381	14.0	1	122,503	278.83	113	54.4
		1910	327,301	37,638,013	115.00	46,571	14.2	1	122,503	.....	219	67.0
New York........	47,654	1880	5,082,871	1,265,105,929	248.90	.....	..	..	.....	.....	8,681	170.8
		1890	5,997.853	1,897,335,886	316.34	3,899,737	65.0	23	2,072	161.93	14,512	241.9
		1900	7,268,894	2,434,347,921	334.90	5,298,111	72.9	20	2,383	174.75	29,138	377.4
		1910	9,113,614	3,725,777,827	408.81	7,185,494	78.8	28	1,702	.....	36,116	396.3

TABLE OF STATISTICAL DATA WHICH FORM THE BASIS OF THIS STUDY—(Continued).

State	Area in square miles.	Census year.	Total population.	Total value of agricultural, mineral, and manufactured products.	Per capita wealth production.	Total urban population.	Percentage of urban population.	Number of institutions.	Area in square miles per institution.	Per capita cost of maintenance in institutions.	Number of institution inmates.	Inmates per 100,000 of population.
North Carolina...	48,740	1880	1,399,750	$ 72,379,098	$ 51.71	.....	..	..	.....	.....	269	19.2
		1890	1,617,947	90,897,605	56.18	115,759	7.2	3	16,247	$177.60	972	60.1
		1900	1,893,810	185,156,677	97.77	186,790	9.9	4	12,185	139.43	1,883	94.5
		1910	2,206,287	388,922,071	176.28	318,474	14.4	4	12,185	.....	2,522	114.3
North Dakota....	70,183	1880	.....	....	.....	.....	..	..	.....	.....	..	..
		1890	182,719	26,354,476	144.24	10,643	5.6	1	70,183	422.73	200	109.3
		1900	319,146	73,770,575	231.15	23,413	7.3	2	35,092	175.30	446	122.2
		1910	577,056	221,477,123	383.75	63,236	11.0	2	35,092	.....	773	134.0
Ohio............	40,740	1880	3,198,062	515,802,603	161.29	.....	..	..	.....	.....	4,048	126.6
		1890	3,672,316	801,574,001	218.27	1,504,390	41.0	8	5,092	160.99	5,808	158.2
		1900	4,157,545	1,146,690,861	275.90	1,998,382	48.1	8	5,092	136.07	10,663	246.1
		1910	4,767,121	1,877,755,018	393.90	2,665,143	55.9	11	3,704	.....	13,545	284.1
Oklahoma........	69,414	1880	.....	....	.....	.....	..	..	.....	.....	..	..
		1890	.....	....	....	.....	..	..	.....	.....	..	..
		1900	398,331	52,718,388	132.35	.....	..	1	69,414	191.22	413	80.5
		1910	1,657,155	285,776,886	172.45	320,155	19.3	2	34,707	.....	1,110	67.0
Oregon..........	95,607	1880	174,768	25,393,753	145.30	.....	..	..	.....	.....	262	149.7
		1890	313,767	61,696,408	196.63	85,093	26.8	1	95,607	146.67	554	176.4
		1900	413,536	86,178,945	209.39	133,180	32.3	1	95,607	123.70	1,285	286.9
		1910	672,765	172,859,888	256.94	307,060	45.6	1	95,607	.....	1,565	232.5
Pennsylvania	44,832	1880	4,282,891	964,655,211	225.23	.....	..	..	.....	.....	3,322	77.6
		1890	5,258,014	1,604,002,898	305 06	2,557,397	48.6	10	4,483	199.44	6,970	132.6
		1900	6,302,115	2,279,557,877	377.58	3,448,610	54.7	10	4,483	.....	13,550	203.0
		1910	7,665,111	3,248,418,118	423.79	4,630,669	60.4	26	1,724	.....	17,763	231.7

TABLE OF STATISTICAL DATA WHICH FORM THE BASIS OF THIS STUDY—(Continued).

State	Area in square miles.	Census year.	Total population.	Total value of agricultural, mineral, and manufactured products.	Per capita wealth production.	Total urban population.	Percentage of urban population.	Number of institutions.	Area in square miles per institution.	Per capita cost of maintenance in institutions.	Number of institution inmates.	Inmates per 100,000 of population.
Rhode Island.....	1,067	1880	276,531	$108,472,196	$392.26	.....	..	..	.....	.....	392	141.5
		1890	345,506	147,705,980	427.51	326,602	94.5	2	534	$122.19	660	190.8
		1900	428,556	191,182,853	446.11	407,647	95.1	2	534	117.10	1,077	235.0
		1910	542,610	288,916,311	532.46	524,654	96.7	3	356	.....	1,291	237.8
South Carolina...	30,495	1880	995,577	57,886,925	58.14	.....	..	..	.....	.....	425	42.7
		1890	1,151,149	86,286,951	74.96	116,183	10.1	1	30,495	142.09	664	57.7
		1900	1,340,316	128,849,777	96.18	171,256	12.8	1	30,495	104.79	1,156	82.1
		1910	1,515,400	267,197,824	176.32	224,832	14.8	1	30,495	.....	1,541	101.7
South Dakota.....	76,868	1880	.....	....	.....	.....	..	..	.....	.....	..	..
		1890	328,808	31,415,889	95.54	28,555	8.2	1	76,868	369.69	232	70.5
		1900	401,570	85,082,762	211.88	40,936	10.2	3	25,623	205.42	646	153.6
		1910	583,888	198,171,658	339.40	76,673	13.1	2	38,434	.....	864	147.9
Tennessee.........	41,687	1880	1,542,359	100,129,440	64.92	.....	..	..	.....	.....	385	25.0
		1890	1,767,518	134,004,750	75.82	238,394	13.5	3	13,896	476.90	806	45.6
		1900	2,020,616	223,844.787	110.78	326,639	16.2	3	13,896	142.58	1,713	81.1
		1910	2,184,789	379,153.272	173.54	441,045	20.2	8	5,211	.....	2,251	103.0
Texas............	262,398	1880	1,591,749	85,924,257	53.98	.....	..	..	.....	.....	350	22.0
		1890	2,235,523	184,118,660	82.36	349,511	15.6	2	131,199	172.62	1,045	46.7
		1900	3,048,710	366,220,358	120.12	520,759	17.1	3	87,466	134.16	3,345	100.1
		1910	3,896,542	700,154,594	179.69	938,104	24.1	5	52,480	.....	4,462	114.5
Utah.............	82,184	1880	143,963	12,733,721	88.45	.....	..	..	.....	.....	29	20.1
		1890	207,905	25,483,526	122.57	75,155	35.7	1	82,184	242.65	124	59.6
		1900	276,749	50,036,584	180.80	105,427	38.1	1	82,184	145.01	344	114.5
		1910	373.351	114,105,483	305.63	172,934	46.3	1	82,184	.....	387	103.8

TABLE OF STATISTICAL DATA WHICH FORM THE BASIS OF THIS STUDY—(Continued).

State	Area in square miles.	Census year.	Total population.	Total value of agricultural, mineral, and manufactured products.	Per capita wealth production.	Total urban population.	Percentage of urban population.	Number of institutions.	Area in square miles per institution.	Per capita cost of maintenance in institutions.	Number of institution inmates.	Inmates per 100,000 of population.
Vermont..........	9,124	1880	332,286	$ 55,710,388	$167.66	.....	..	..	.....	.....	454	136.7
		1890	332,422	64,379,068	193.67	117,063	35.2	1	9,124	$179.62	481	144.9
		1900	343,641	97,099,412	282.56	139,180	40.5	1	9,124	.....	887	255.1
		1910	355,956	125,263,811	351.91	168,943	47.5	2	4,562	.....	990	278.1
Virginia..........	40,262	1880	1,512,565	98,648,921	65.22	.....	..	..	.....	.....	1,098	72.6
		1890	1,655,980	136,631,358	82.51	282,721	17.1	4	10,066	163.02	1,764	106.5
		1900	1,854,184	225,329,262	121.52	340,067	18.3	4	10,066	112.79	3,172	164.7
		1910	2,061,612	373,324,196	181,08	476,529	23.1	5	8,052	.....	3,695	179.2
Washington.......	66,836	1880	75,116	7,991,793	106.39	.....	..	..	.....	.....	91	121.3
		1890	349,390	58,441,307	167.27	127,178	35.6	1	66,836	217.15	341	97.7
		1900	518,103	127,016,205	245.16	211,477	40.8	3	22,279	132.03	1,259	218.7
		1910	1,141,990	332,808.981	291.42	605,530	53.0	3	22,279	.....	2,146	187.9
West Virginia....	24,022	1880	618,457	44,411,287	71.81	.....	..	..	.....	.....	394	63.8
		1890	762,794	66,110,929	86.67	81,365	10.7	1	24,022	123.78	860	112.7
		1900	958,800	167,985,723	175.20	125,465	13.1	4	6,006	156.36	1,616	157.0
		1910	1,221,119	306,353,603	250.88	228,242	18.7	4	6,006	.....	1,936	158.6
Wisconsin........	55,256	1880	1,315.497	201,579,677	153.23	.....	..	..	.....	.....	1,230	93.5
		1890	1,686,880	329.720,670	195.46	562,286	33.2	3	18,419	192.81	1,378	81.7
		1900	2,069,042	522,692,468	252.63	790,213	38.2	5	11,051	.....	5,634	255.6
		1910	2,333,860	857,314,131	367.34	1,004,320	43.0	40	1,381	.....	7,616	326.3
Wyoming.........	97,594	1880	20,789	2,368,657	113.93	.....	..	..	.....	.....	0	0
		1890	60,705	6,419,706	105.75	21,484	34.3	1	97,594	.....	23	37.7
		1900	92,531	21,892,941	236.60	26,657	28.8	1	97,594	207.96	96	93.0
		1910	145,965	50,734,435	347.58	43,221	29.6	1	97,594	.....	162	111.0

A CASE OF RETRO-ANTEROGRADE AMNESIA FOLLOWING GAS POISONING.*

By PHILIP COOMBS KNAPP, A. M., M. D.,
Visiting physician for diseases of the nervous system, Boston City Hospital.

The report of a single case, not yet complete, is justifiable only on account of its rarity. Retrograde amnesia at best is a comparatively rare condition, but as a sequel of poisoning from illuminating gas or other forms of carbonic oxide it is most unusual. No mention of amnesia as a sequel of gas poisoning is made by von Jaksch in his monograph on poisons, and out of the 112 cases of retrograde amnesia collected by Kaufmann, only eight were attributable to this cause, and, of these eight, only one, that of Dana, was reported in this country. The case which I have to report, furthermore, is of special interest not only from the length of the retrograde amnesic period, but also for the striking character of the continuous amnesia which followed the poisoning.

Mary H., 43, married, a native of Nova Scotia, was brought to the Boston City Hospital on the 10th of May, 1910, in a semiconscious condition. She had been found totally unconscious in her room about 8 a. m. on that day, and the gas was escaping from a burner near the window. She had been perfectly well a few hours earlier, and it was thought that she had arisen some time after 3 a. m. to close the window and had accidentally hit the stop-cock of the gas burner, which was easily turned in this way. She was supposed to have been exposed to the gas about four hours. Except for an odor of gas in the breath nothing was found on physical examination. The next day she regained consciousness completely, but she did not realize where she was or recognize her attendants. She ate little, complained of feeling very tired, and slept much of the time. She was somewhat bewildered and depressed, had lost her reckoning of dates, and could not remember her attendants, but she recognized her husband and children when they came to see her. Although she was not particularly depressed and there had been no hint at suicide, it was thought best to transfer her to a first floor ward, lest she might be tempted to jump out of the window. During the latter part of May Dr. Buckingham, to whose service she had been admitted, asked me to see her in consultation, and on the 1st of June she was transferred to my service.

---

* Read before the New York Psychiatrical Society, November 15, 1911.

The family history revealed nothing worthy of note, there being no nervous or mental peculiarities in the antecedents. Her mother had died many years before of some unknown cause, and Mrs. H. was her only child. Her father was still living and in good health. He had married again and had had several healthy children. It is a curious coincidence that her stepmother's brother had once been overcome by gas from a stove, after which his memory became defective and he showed some mental peculiarity for the rest of his life.

Mrs. H. left home some time after her father married again, and lived with some of her mother's family. At the age of 18 or 20 she came to Boston without letting her father know, and went to work, seeing comparatively little of her family after that. At the age of 25 she married. She was said to have been lively and cheerful, always laughing, and expressing herself as very happy and contented with her lot. She had had three children and no miscarriages. She was devotedly fond of her husband, but was sexually rather frigid. She had had no serious illnesses. She was a healthy, active woman, intelligent, hard working, and showing good judgment and ability in the care of her household and children, trying hard to make both ends meet, exercising strict economy, and eking out the family income by taking lodgers. Her husband was a kindly, easy-going man, belonging to various lodges, usually away in the evening, and occasionally indulging a little in alcohol. His income was small and they were somewhat in debt, which caused her more or less worry. After his death, which occurred in February, 1911, she once asked her step-sister if it were true that he had another woman. If it were true, she said, it would all come out, and if it did come out, she would do something. About a year after she was brought to the hospital it was accidentally divulged that for years she had had spells of going to bed without any reason and remaining there two or three days at a time. On the 9th of May, 1910, she had gone to bed in the afternoon in one of these spells, and the next morning she was found by her daughter with one end of the tubing from the gas range attached to the gas burner in her bed-room, and the other end in her mouth.

While in the hospital she complained chiefly of feeling tired, and of an occasional headache. Menstruation seemed to have no influence upon her condition. Physical examination never revealed anything except a slight inequality of the pupils and a very slight hypæsthesia on the left side, which gradually disappeared in a few weeks. This hypæsthesia was not accompanied by any change in the visual field or any alteration of the reflexes.

The striking feature of her condition was amnesia. This was characterized not only by a loss of previously acquired memories, but by an almost total inability, at first, to acquire new memories. Not only had she no memory of coming to the hospital, which of course was to be expected, but she was wholly disoriented for time, had no idea how long she had been in the hospital, and insisted that she had just come that morning. This statement she repeated daily. She could not tell the day of the week, the month, or even the season of the year except very vaguely. She said that she was married, gave the names of her husband and children correctly, but had no recollection of their visits. When told that she had been in the hospital several weeks she expressed great surprise and insisted that it was not so, that she had just arrived that morning. She regarded me as a total stranger and insisted that she had never seen me before. After carefully explaining to her who I was and making her repeat my name, I would turn to the next bed, and in 20 to 30 seconds turn back to her and ask her who I was. She would again insist that she had never seen me before. I would tell her that she had been in the hospital a month and then ask her how long she had been there, and she would again say that she had arrived that morning. She very soon realized her failure of memory and would respond by a question, "What is your name?" "How long have I been here?" often as an appeal to the nurse. Various tests of the power of acquiring new impressions were made during her stay in the hospital, both by visual and auditory impressions, and always with the same result. In 30 seconds or less she had forgotten what she had seen or what was told her. The orientation for place was rather better. She soon appreciated the fact that she was in a hospital, and, so far as

I could learn, she never made any mistakes, after the first, in going to the toilet or the serving room at opposite ends of the ward, and she seemed to appreciate the difference between the nurses and the patients.

On investigating her ability to recall former memories, this also proved to be very defective, especially for the three or four years preceding the gas poisoning. She insisted at first that she lived on S. Terrace and that her husband worked for A. B. They had, however, moved to K. Avenue three or four years before, and her husband had ceased to work for A. B. at about the same time. Later she was in doubt about where she lived, usually answering, " S. Terrace," but, on being asked if it was not K. Avenue, saying, " Well, perhaps it is." She gave correctly the name of her family physician, and said that he was living, although he had died the year before and she had been to his funeral. She was uncertain as to the ages of her children, and gave different answers from time to time. In May she told me that her youngest daughter, aged nine, was four years old and went to school. When I suggested that the child was under the school age she said: " Oh, no; they go to school much younger than that." When asked how much younger, she said, " They go when they are six months old." I asked how they got there, and said that they would have to be carried. She replied that they walked, and that many children walked to school at that age. This was the only irrational statement I ever heard her make, and, when I told her of this conversation a few weeks later, she recognized its absurdity and insisted that she never could have said it.

She could tell where she was born, but she was uncertain about the location of the town. She knew that to come from there you would have to go to Yarmouth and take a steamboat, that it was a considerable journey from the town to Yarmouth, and that the town was on the coast, but she could not tell whether it was near the ocean or the Bay of Fundy. She knew approximately the length of time it would take to come from there. She remembered that she lived in East Boston before her marriage, but she could not tell anything about how to get to Boston from East Boston. She had little recollection of the shops where she traded, or what car to take to reach her home. She could give no account of her marriage or any circumstances associated with the birth of her children.

Apart from this failure of memory there were no mental symptoms of any prominence. She said she was homesick and wished to go home, and spoke with interest and affection of her family. She understood immediately whatever was said to her, and answered quickly and intelligently. She was quiet and indisposed toward any effort, but she would assist in the work of the ward when asked to do so, and performed such simple duties intelligently. She realized that her memory was lost, and tried hard to make up for it. She would be told daily my name and the names of the house officers and head nurse, which she immediately forgot, although she would promise to remember, but finally she wrote them on her fan, and would steal a glance at it to remind herself of the names. It was several weeks, however, before she admitted that she had a visual memory of our faces, which she acquired before she acquired our names. After some weeks she grasped the idea that she had been in the hospital for some time, but she could not tell how long. She had no idea of the day or the month, and was surprised when she was told, expressing considerable concern as to the fate of her household during all that time without her care. When told of her mistakes in recalling the length of her stay or the month she would say, "Oh, I can't remember anything. I must be going crazy." After a time she learned the cause of her trouble, and would say, "They tell me I was overcome with gas in my own home." These phrases would often be repeated in the same words and with the same intonations, as if she were repeating a lesson, but, although used in a somewhat stereotyped way, they were never employed except responsively on the proper occasion.

Her ability to recall former memories gradually improved. After some weeks she would usually answer that she lived on K. Avenue. At the end of June she remembered the shops where she traded. She told how to make bread, sang one or two familiar hymns, counted, repeated the alphabet, the days of the week, the months, etc., correctly and quickly, and performed simple problems in mental arithmetic fairly well. A little later she remembered that she used to go from East Boston to Boston by the ferry, and could tell correctly what car to take to get home from down town. She seemed bewildered, apparently from her inability to remember, and was greatly disturbed by it, often saying, "I must be going crazy." She had a perfectly just appreciation of the conditions about her, showed good intelligence and judgment, but she was uncertain and distrustful of herself owing to her lack of memory. There was no stupor or negativism. She always expressed herself clearly and in good language; there were no hallucinations or delusions, no confusion or incoherence, no psycho-motor retardation or disturbance of the course of thought. She always understood what was said and answered quickly, intelligently and responsively. The reaction line in association tests was a trifle slow, but the responses showed nothing remarkable. Her power of attention was also rather slow, and in certain tests, such as striking out a particular letter on the printed page, she made rather more mistakes than the average. She was somewhat depressed, but no more than was natural under the circumstances. In the association tests she would occasionally interject some familiar phrase; for example, when given the word " home," " Be it ever so humble, there's no place like home." Repeated attempts were made to hypnotize her, but without success. On the whole, except for the failure of memory, she showed better mental capacity than the average woman in her walk in life.

On the 20th of July she was discharged and returned home. Here the conditions were depressing. Her husband had been out of work more or less and was in debt. Her husband's mother was in the house, but she had done little in the way of managing affairs and was admittedly most difficult to live with. Her children, especially the older girls, aged 16 and 17, had been under no control and had become independent and wilful, resenting their grandmother's interference and quarreling frequently with her. Mrs. H. was often disturbed by these quarrels and would go to her own room and cry, aften staying by herself for some time. She showed marked affection for her family and interest in their welfare, but she recognized her own inability to control her household and manage her affairs as before. She still complained of being tired and showed much inertia and lack of initiative, but she could perform her household duties as quickly and as well as before her accident, except that, if her attention was diverted, she would forget what she was doing. She sewed as neatly and repaired her husband's clothing as well as ever. When asked if she had made the beds, she would say, " Did I make the beds? I'm sure I don't know." She could prepare a meal and cook it as well as ever, but if she put anything in the oven she would forget it and let it stay indefinitely unless some one reminded her of it.

She was brought to see me on the 3d of October, when she could not remember how long ago she left the hospital, although she did remember being there. She said at first it was a month ago, then two months, then two or three months, looking earnestly at me to see if she had guessed right. She could not tell the day of the week, or of the month, but said it was September, 1911. She told me correctly where she lived and remembered my name, repeating, as if it were a lesson learned by heart, my name, the name of one of the house officers, and the name of the head nurse, "Dr. Knapp, Dr. Fenton, Miss Delamere." Curiously enough, she remembered the name of the house officer who had come on duty the last two weeks of her stay in the hospital, and never has been able to recall the names of other nurses or house officers who had the charge of her from June until the day she left, although she remembered that she had seen "a lot of doctors." She complained of being weak all the time, and of being unable to remember from one meal to the next. She did not remember the date of her marriage or how long she had been married, nor could she tell correctly the ages of her children. She had not gone out alone, because she would get lost. She would start to do things and the memory would leave her, so that she forgot what she was going to do. Simple problems in mental arithmetic were performed slowly and incorrectly. She could repeat a sentence of eight or ten words, but with a longer sentence she failed. She could repeat the months in order and the days of the week. She remembered her birthplace and how to get to it, but said it was on the Bay of Fundy instead of on the ocean. Tests for association and attention showed nothing beyond somewhat slow reactions. She remembered at all times that her husband was out of work. Several weeks later she remembered that she had been at my office and that I had made her do something with letters, and told her stepsister about it. She also wrote a fairly normal letter to her stepsister. In November she had gained somewhat in weight and complained of shortness of breath. The heart was somewhat irregular in its action. The memory had improved a little.

Soon after this she was admitted to the Adams Nervine Asylum, and I am indebted to Dr. E. B. Lane for notes of her condition while there, as well as for the information as to the real facts about the gas poisoning. On entrance the pupils were found to be dilated and to react slowly to light. The knee jerks were exaggerated and she swayed markedly when standing with the eyes closed. She could with difficulty remember the day of the week, and seemed much confused. Her physical health was good, but she was averse to any exertion. She very easily lost her way in the building or about the grounds, and had to be led to the dining room. She sewed very well when work was found for her and put in her hands, but she had no ambition to be employed. While at the Nervine she had several peculiar attacks, during which she complained of headache, stayed in bed, and her pulse and temperature were below normal. She never failed to call Dr. Lane by name when asked who it was, but other people, whom she saw more frequently, she could never call by name. She was conscious of her defective memory and adopted certain devices to conceal it, getting the nurse to mark a calendar so that she could give the date correctly every morning. The memory improved a little during her stay there.

During her stay at the Nervine her husband gave up the house, stored the furniture, and sent the children to relatives. On the 18th of February, 1911, he was killed in an accident. She was very much disturbed and wept for a week or two. She went to the funeral and, while there, is said to have refused to believe that he was dead. She was, however, perfectly aware that he was dead and has never forgotten it. At the time a nurse felt that she was more concerned about her personal appearance than anything else, and she took a lively interest in the new clothes which were bought for her mourning. About a week after the funeral she made some joking remark about getting another man, as she had lost hers, and laughed in a silly way.

In June, 1911, she was taken from the Nervine to her old home in Nova Scotia. Her condition remained about the same. She seemed to take no interest or pleasure in her visit or in seeing her old friends and relatives. She would sit silent for a long time, staring sadly into vacancy, and it was difficult to rouse her to any effort or to do much work. She wandered away several times, and said that she would end it all. She became careless in her dress, and on one occasion started to soak and to wash her menstrual cloths in the cooking utensils, showing indifference when corrected. She was somewhat irritable, tried to strike her step-mother, and finally struck her in the face, causing some swelling and discoloration. In consequence of this her step-sister brought her back to Boston to see me again the last of September.

She met her daughter and her step-sister, neither of whom she had seen since June, with very little interest. She seemed indifferent as to what was going to be done. The night before she came to see me she laughed a long time without any apparent cause, then later she laughed heartily over some childish nursery rhyme. Later in the evening she had a long crying spell about her husband. She was unable to remember where her various articles of the toilet or of wearing apparel were, even after she had been shown where they were put. When she saw me, on the 1st of October, she could not call me by name, but she said that my face was familiar; but she recalled the names of the physicians at the Nervine and my house officer; later she repeated, "Dr. Knapp, Dr. Fenton, Miss Delamere," in the same old way. She had no memory of striking her step-mother or of taking the gas with suicidal intent. She told me where she had been during the summer and whom she had visited, but was very vague as to the dates or the length of her visits. Her step-sister asked her what the inscription was inside her wedding ring, and she told her at once, and correctly, without looking at it. She said she was anxious to get well, but she felt weak and could fall down anywhere. She said she had no pleasure or enjoyment in life. "My contentment is gone; my memory and ambition have left me, and I'm not fit for anything." She sat silently with a fixed, sad look, and paid little attention to the conversation between her step-sister and myself. Nevertheless, she always answered intelligently and promptly, and seemed to have no difficulty of comprehension. When asked why she was crying she said: "You know what has happened to me and why I cry. I have lost my home and my husband, and I have enough to cry for." Except for the greater depression and apathy, there was little change in her mental condition. The physical condition was good. The pupils reacted normally, the knee jerks were lively, and sensation was normal. Nothing, in fact, was revealed on physical examination. She had grown somewhat stouter, and the menstruation, which at first was normal, had begun to be irregular.

The next day she was brought to court and seen by Dr. Lane in regard to commitment. She recognized him and called him by name, and talked with him perfectly naturally. His questions were largely in regard to her feelings, whether she wished to live or to make way with herself, and the like. She answered promptly and intelligently, saying that she would like to get well, but that she had rather be dead than live this way. When I came into the courtroom she was a little slow in calling me by name. I put various questions to her in regard to her actions the previous day—had she seen me, where had she been, etc.—and her uncertainty and defective memory made a very striking contrast, according to her step-sister, with her answers to Dr. Lane. She was committed to the Westborough Hospital on the 2d of October, and is still there. On her arrival she very promptly recognized that the people about her were insane and that she was in an asylum. Her condition while there has changed but little.

[In April, 1912, she was still depressed and claimed that she could remember very little, although repeated inquiry brought out the fact that she actually remembered more than she admitted. It was thought that she made little effort to remember.

In June, 1914, she seemed pettishly irritable, finding fault with her surroundings and talking rather insolently, but it seemed more like talking for effect than from any strong feeling. She showed some lack of insight into the reasons for being in the hospital, and her emotional reaction was inadequate and inappropriate. She was quickly diverted, and her expressions of annoyance were inadequate. She had various vague notions that some unknown man was interesting himself, possibly from his affiliation with some order to which her husband had belonged, about taking her from the hospital, but her statements seemed to lack any idea of reality. She also complained of hearing much vulgar and obscene talk, which may have been an hallucination. She was well oriented, but did not seem to have any true appreciation of her condition.

In May, 1915, there was little change except that she was a little less irascible and fault-finding.]

While it may be admitted that Mrs. H. was not in a normal mental state in May, 1910, as shown by her attempt at suicide, it may be fairly questioned whether that were not a sudden impulse, brought about by financial worry or some story of her husband's misconduct which may have come to her ears and of which a fragment may have remained in her consciousness in spite of her amnesia, as shown by her inquiry of his sister about his having another woman in the spring of 1911. Whatever her mental abnormality, it must have been comparatively slight and transitory, for there is a general agreement among those who knew her that she had always been intelligent and capable and had shown no such disturbances of memory as she did after May, 1910.

From the time of the attempt at suicide until her husband's death, it has seemed to me that her whole mental state is dependent upon the failure of memory. In retrograde amnesia there are two different groups of memories which are involved. In the first place, there is a loss of memory of the event which gives rise to the amnesia, concerning which in this case it has been impossible to revive any recollection. In the second place, there is a loss of memory for events preceding the event which gave rise to the amnesia—a true retrograde amnesia covering in this case a very long period of time. From my own inquiry and from the investigations of her step-sister, there is apparently a complete amnesia for everything that happened during the three or four years that preceded the suicidal attempt. Little if any recollection of this period seems to have been restored. It is true that she "remembered" that she lived on K. Avenue instead of on S. Terrace, but she was told repeatedly that she did not live on S. Terrace and that she did live on K. Avenue, and she eventually went back to K. Avenue to live, so that the few memories which she apparently recovered of conditions occurring during this period may fairly be attributed to processes of reeducation rather than to the revival of old memories. In addition to this period of total amnesia, there is a very considerable failure of memory for events occurring during a considerable period of her life, her girlhood days in Nova Scotia, her life in Boston before her marriage, her marriage, the birth of her children, and similar events which any woman of as much intelligence as she is credited with possessing would inevitably remember. She retained, however, much of her school knowledge, her ability to conduct household affairs, her ability to read and write and the like. She recalled some of these things, she always knew that she was married, that she had lived in certain places, and that she had had three children, but she could not recall the details that she ought naturally to have remembered. The exact period when the total amnesia began is uncertain, and her answers as to dates and ages do not show any definite period. Her statements as to the date of her marriage, the ages of her children, etc., are all wrong, but the error varies in each case and is, therefore, not an indication that she was giving her recollection of their ages at the period when her partial amnesia became total. So far as could be determined, this partial retrograde amnesia extended over her whole previous life, becoming total at a time three or four years preceding her accident. Certain memories during this partial period seem to have been recovered; for example, her memory of the method of transit from East Boston to Boston; but, even if reeducation can be excluded, the recovery has been very slight, and much of her past remains blurred.

By anterograde amnesia Wollenberg understands the loss of memory for events which follow the event giving rise to the amnesia. This, in its limited sense, is often obscured by another condition, which Souques terms anterograde amnesia and to which Janet has given the name of continuous amnesia, namely, the inability to acquire new memories. This inability to acquire new memories in the present case was very striking; at the first, for example, she could not acquire any memory of my words or appearance and retain it for 30 seconds. An event associated with a very profound emotional content, however—her husband's death—has been retained in memory, as well as conditions associated with her environment and extending over a considerable period of time, such as the general fact of her stay in the hospital and at the Nervine, her visit to Nova Scotia, etc. Of such conditions, however, she remembers merely the general fact—all details are vague and uncertain. Even when these new memories have been acquired, however, they are not well preserved—the true anterograde amnesia of Wollenberg. Thus, after long effort and many failures, she learned my name and retained it for many weeks, yet that memory, after a time, grew dim and was with much difficulty recalled. The ability to acquire new memories has improved a little, but still remains very defective, as does her memory of any event acquired since her accident, unless the event have a profound emotional content or be of a continued character.

The process of realizing her condition was at first slow, owing to the very great inability to acquire new memories. The amnesia led to a curious mental state of bewilderment and uncertainty, which at first sight suggested mental deterioration, but which was not deterioration at all. All her intellectual processes have appeared normal, except so far as they were dependent upon memory, and the power of acquiring new memories—a very considerable exception, to be sure. Her constant feeling of fatigue produced a certain inertia which was materially fostered by her inability to recall past memories and acquire new ones. The result was astonishment at the facts presented to her, as indication of the lapse of time during her illness and the events that had occurred, which was constantly repeated at each new presentation by reason of her failure to retain former presentations in her memory; considerable disorientation as to time and to some degree as to place, and inability to recall various processes or to retain any given process in memory long enough to carry it to completion. This led to uncertainty, doubt, and a feeling of inadequacy and helplessness, with a certain amount of mental depression consequent thereupon.

With the death of her husband a new element was introduced. Not only had she lost him, but she had lost her home and her means of support. Her family was broken up, her children separated and dependent on the charity of relatives; they had also become more or less unruly, and it was hinted that the oldest girl was inclined toward doubtful amusements. She herself had become dependent and was conscious that with her failure of memory she was incapable of caring for herself or her family. These conditions, actually existing naturally gave rise to profound depression. With this has come some apparent apathy toward her sister and her children, and, it may be, some thought of suicide. In fact, she admits that it would be better to be dead than to live on in her present condition. Nevertheless, she can be roused to talk freely and intelligently, without any trace of mental confusion or of any special psycho-motor retardation. There is a marked lack of initiative and of interest in life. She realizes her incapacity and feels that it is likely to be permanent. It certainly seems a question whether her mental depression is anything more than is warranted by the conditions that surround her.

There remain certain other symptoms to be considered. In the first place, there has been a certain tendency to respond to questions in a stereotyped way, as " They tell me I was overcome with gas in my own home," or her repetition, " Dr. Knapp, Dr. Fenton, Miss Delamere," when asked my name, always in the same words and with the same intonation. These answers, however, have always been responsive and have never been given irrelevantly; they have been repeated, too, somewhat in the same way as the schoolboy in studying a lesson, and, in fact, they represent facts which she has tried hard to learn. Furthermore, her step-sister has a trick of answering questions in a very similar fashion, giving answers or stating incidents in precisely the same words and intonation as on a previous occasion. Once only did she utter a manifest absurdity, as in her statement about six-months-old children attending school; two or three times she has made some foolish remark or laughed in a foolish manner; yet these, by themselves, can hardly be regarded as especially indicative of mental disease. The irritability, leading to actual violence, too, is by itself insufficient to throw much light upon the mental state. The lack of personal neatness seems so pronounced as to warrant suspicion of mental deterioration.

That a certain amount of mental deterioration should take place is not remarkable. She has been deprived of many of her former memories, and has lost much of her power of acquiring new ones. The loss of former memories is by no means as complete as in some cases, Dana's for example. She has retained completely the faculty of speech, the muscular control and the faculty for performing all varieties of complex, co-ordinated movements requisite for the accomplishment of various tasks, such as sewing. She has not lost the memory of persons or places that she formerly knew. There has been no failure to comprehend relations of space or time, although she has failed to acquire a sufficient appreciation of the passage of time. The processes of thought have gone on normally, except for a little slowness and uncertainty dependent upon her uncertain memories. There has been nothing in her condition to warrant the suspicion of a true dementia, although the contents of consciousness and to some extent the activity of consciousness have suffered less. When we consider for a moment the enormous importance of our memories in every form of mental activity, it is not to be wondered at that a certain amount of mental deterioration should exist. The remarkable feature is that, with so great a memory loss, her intelligence should be as good as it is.

The pathology of retrograde amnesia is still uncertain. The largest number of reported cases have occurred in those who have been resuscitated after hanging, usually in cases of suicide. It may also occur after injuries to the head, epilepsy, eclampsia, hysteria, alcoholism, carbonic oxide poisoning and infectious disease. In the cases of strangulation the asphyxia and the circulatory disturbances are thought to have considerable influence. In alcoholism and carbonic oxide poisoning the toxic factor is, of course, the important one. Too few cases of retrograde amnesia as a result of carbonic oxide poisoning, however, have been reported to warrant any very positive deductions. Dana's case, with its extreme amnesia, its change of personality and its sudden recovery, suggests that the gas poisoning served as an exciting cause of one of those peculiar dissociations of personality usually classed as hysterical. In the present case, the suspicion of hysteria was naturally aroused. The emotional disturbance, whatever it was, which was profound enough to lead to an attempt at suicide, was, of course, unknown when she first came under observation, but it was a psychogenic factor of the first rank perfectly capable of exciting any of the accidents of hysteria. The slight hypæsthesia, the rare instances of emotional instability, are also suggestive. Kaufmann, however, is not disposed to class the cases of retrograde amnesia due to carbonic oxide poisoning as hysterical, and in the present case there are various elements which speak against hysteria. The long continuance of the amnesia and the gradual though slight recovery of former memories and the slight improvement in the faculty of acquiring new memories, the inability to discover any sub-conscious activities, the complete failure of attempts at hypnosis, the absence of other hysterical manifestations, and the fact that pronounced emotional disturbances have had no influence on the amnesia, all render the diagnosis of hysteria improbable. In every case of strangulation amnesia, by the way, hypnotism has been ineffective.

Eleven cases out of 44 of retrograde amnesia from all causes collected by Kaufmann made a complete recovery, one grew worse. Recovery may be sudden, as in Dana's case, or gradual, the more distant memories being the first to return. As a rule, however, the cases do not recover.

Twenty-three of Kaufmann's cases, including four of the eight carbonic oxide cases, show the inability to acquire new memories in connection with the retrograde amnesia. Liepmann's case of retrograde amnesia of long extent and of alcoholic origin is of interest as being combined with a typical Korsakow's psychosis. The period of retrograde amnesia is usually brief, a few hours or a few days, and is usually complete, without any period of partial amnesia preceding it. There may, however, be curious preservation of memories during the amnesic period. A patient under my observation was driving, when a railway train struck his carriage and he was thrown head first on a pile of stones, fracturing the skull across the vertex. He was unconscious for several weeks after it, and, on regaining consciousness, he was found to have a permanent retrograde amnesia for the 24 hours preceding his accident. His memory for events before that period was normal. He recalled one incident, however, during the 24 hours. He was on the platform of a street car, saw an acquaintance on the street and saluted him. This was the only memory he had of that period, yet it was perfectly distinct and was later proved to be correct. Kaufmann has noted two cases when the period of retrograde amnesia was 23 and 57 years respectively. My own case is of unusual duration, going back 25 or 30 years and perhaps more, and is further remarkable from the fact that the period of complete retrograde amnesia is preceded by a much longer period of partial amnesia. The marked failure of the power to acquire new memories, also, is of great interest, and naturally leads to much more pronounced mental incapacity.

My thanks are due to Drs. E. B. Lane and S. C. Fuller for notes as to the patient's condition at the Adams Nervine Asylum and at Westborough.

BIBLIOGRAPHY.

Dana: Psychological Review. Nov., 1894.

Von Jaksch: Die Vergiftungen. Nothnagel's Specielle Pathologie und Therapie, Bd. I.

Janet: Névroses et idées fixes, I, 109.

Kaufmann: Beiträge zur Kenntniss der retrograden Amnesie.

Souques: Revue de Médecine, 1892.

Wollenberg: Archiv für Psychiatrie, XXXI, 241. 1898.

A STUDY IN SOCIAL MALADJUSTMENT.

By H. B. MOYLE, M. B., Brookline.

Perhaps nothing has been more noticeable in the recent work done in psychiatry than the great increase of interest in, and attention given to, what may be called the " border line " type of case. The programs of conventions, the numerous articles in medical journals, and even the addition of such words to our vocabulary as " moron," " psychopathic personality," etc., all bear witness to this fact. And this change in the focus of attention is at once the reflection of a new attitude towards mental disease, and—there is reason to hope—also, a sign-board indicating a direction in which much progress will be made in the study of this branch of medicine.

Until a recent period, the problems of custody and legal responsibility were largely the ones which were regarded by most people as being the only ones which touched the interests of the community to any extent, and even the attention of the medical profession was focused largely on the well-developed and incurable forms of disease. Consequently, psychiatry was more or less open to the charge—frequently made—of being " a hopeless study " where therapeutics was useless and a study of causes vain. But in the last decade or so, several factors have been at work to bring about a greater socialization of this branch of medicine, which has at the same time immensely stimulated the strictly scientific side of the subject. These influences it will be worth while to mention very briefly.

First of all, there has been a great increase in the number of patients who go about from one physician to another with a variety of symptoms and complaints for which there is a very inadequate physical basis. These cases have been classed together, despite some differences, as the " psycho-neuroses." Though all sorts of treatment have been advised and used, many of them have permanently " dropped out " of their places and have been content to become " social parasites," seemingly without any sufficient reason for the breakdown. But the longer cases of this sort have been studied, the more definitely it is seen that the essential element in their situation is an inability to deal with their "social responsibilities," whether it be in the family or in business relationships. In short, what first seemed only an unfortunate result —just as any illness entails a dropping of work for a longer or shorter time—becomes the core of the problem with these individuals.

Then, secondly, the study of another large class of social failures—the delinquent class—has revealed very similar conditions. Here—though occasional cases of true episodic insanity, or marked mental defect, have been found—a very large number who are of the "habitual offender" type show some mental or moral twist, or unusual type of emotional reaction, which results in frequent collisions with the conventional social standards as they are organized in the laws. And so, here also, we have been obliged to recognize an abnormal personality as the dominant factor in the situation.

Indeed, if we adopt Spencer's very suggestive definition of life as a "continuous process of adjustment by the organism to the environment," it would seem that in all these cases the ability of adjustment to the social environment with its complex requirements has either been partially lost, or has never been fully developed, for it is preeminently in the realm of social relationships that the trouble occurs.

Forced as we have been to concede the tremendous social importance of the problems presented by this class of individuals, it seems appropriate to study them from the point of view of their social history, as is suggested by the title of this paper. This may be done the better, as they seldom show any marked mental abnormality, such as delusions, nor do they present the distortion of the mental processes, or disintegration of the personality, such as is usually seen in cases of chronic or advanced mental disease. Consequently, the abnormal reactions stand out fairly clearly in an otherwise nearly normal mental picture. Naturally, it will be easier under such circumstances to correlate present conditions with the causal factors, and the better we know the individual and his history, the more clearly can we see the points where the personality tends to develop in pathological directions. Then again, as many such cases show an unusual persistence of childish attitudes and types of reaction, it is obvious that a study of their histories will give valuable help in understanding the social development of the normal individual.

From this genetic point of view, there are several points worthy of brief notice just here, which bear on the atypical course of development in these persons. First of all, it may be posited that this social development in any individual is fundamentally a process of gradual transition from the thoroughgoing egoism of the young child to the attitude of the adult to whom " nothing human is alien "; or again, this process may perhaps be thought of also as a *gradual enlargement* of " the self " as conceived by the individual—as Profesor James put it in his illuminating way—so that what McDougall calls " the self-regarding instinct " comes to have a wider and wider application.

Now, it is essential for this process that the developing individual shall both come into very intimate and frequent contact with others of the community, and that he shall come to have at least some feeling of identity with them. The synthesis of the individual's thought of himself *as an individual* with all that implies, and the complementary thought of himself as making one in a community composed of many individuals, has been seldom expressed more concisely than Kipling has done by lines put in the mouth of a soldier returning from the Boer War, who is trying to tell the effect of his experiences on himself:

" Me, alone like all the rest,
But *stretching out* to all the rest."

Now just a word as to the results of this necessary contact of the individual with others. First, if he is at all gregarious in his make-up, there will come a delight in activity in which he is associated with others, and this is manifested from the time the child begins to crave company in his play to the period when the adult finds his chief interests in the tremendous business, industrial and even moral enterprises which depend for their success upon the loyal cooperation of many individuals equally interested in the aim in view. In short, most people—whatever their age—find a much greater satisfaction in activity which is social rather than solitary, and having once experienced the pleasure of doing things *with others,* anyone—child or adult—inevitably tends to do *what* he sees the others do. That is to say, the suggestibility of the individual, which is one of the very greatest forces in bringing about the "consciousness of kind," as Giddings calls this feeling of identity with the rest of the community, is a direct result and in proportion to his gregariousness. The solitary type of personality as, for instance, the only child living entirely in a society of adults, will usually attempt to impress his ways or desires on others, rather than tend to adopt quickly those of other children he may happen to meet, and the same tendency will be seen in the adult whose life is largely lived alone.

Then again, it would seem that sympathy—which is perhaps the mark of a fully socialized person, as suggestibility is the necessary basis—depends largely on at least some *community* of *experience*. That is, it is impossible to genuinely sympathize or "feel with" those whose experience has been altogether different from our own, and it is a commonplace that the person who has suffered the most is the most sympathetic with others. This must be so, for *there are no other terms than those of one's own experience* and our own attitudes in which it is possible for any of us to understand another's personality.

These conceptions as to the genetic rôle of suggestibility and sympathy have been introduced here, because it is exactly in these respects that the "border-line" type of individual is apt to show variation most widely, and it is in a study of the extent and genesis of these variations that the key to the individual's personality is often found. Believing, then, that any careful analysis of such a case is worth while both for the sake of comprehension of the individual and for the sake of the prophylactic implications, the following case is presented in some detail, as it seems rather a good example of one type of social maladjustment. In doing this, the essential features in the clinical picture are given and then the history, so far as it may throw any light on the patient's condition.[1]

Case Analysis.—The patient, a woman now about 55 years of age, on the whole presents a picture of an uneven mental and moral development rather than a perversion of function.

(1) On the intellectual side, she has that varied smattering of many things, none known well enough to be of any real service,

---

[1] In this analysis the outline has been used which is given by Hoch and Amsden, in their "Guide to a Descriptive Study of the Personality." (Review of Neur. and Psychiatry, Nov., 1913.)

which was characteristic of the education of girls of well-to-do families at the time of her youth. This included a certain facility in French and German, which she still keeps up to a slight extent; the ability to use a typewriter, which seems to represent an abortive attempt to help her father in his business, and the ordinary accomplishments required in polite society. So far as ability to observe things going on in the world around her, and even in relating them, she is rather shrewd, and, indeed, likes to be regarded as "a woman of the world." But all her comments reveal the fact that she sees only the superficial aspects of things, and those which make a strong appeal to the senses. The chief point of note on the strictly intellectual side is the deficiency in the power of attention which is shown. Her talk—conversation would be an incorrect term to use, as the monologue is her favorite literary form—flits rapidly over a wide variety of topics, often losing sight of the original starting place entirely. In fact, frequently she will even start a very emphatic protest against what she regards as unfair treatment, but will have wandered far aside even before the hearer can understand the cause of her annoyance. Connected with this inconsequent habit of thought and lack of concentration, is the fact that patient shows no real "interests" whatever which would tend to stimulate any mental activity. Somewhat shrewd, in a superficial way, possessing fairly good powers of perception but very slight power of judgment, she presents an intellectual side practically adolescent in development.

(2) As to the traits relating to the output of energy, as her desires are largely confined to the sphere of her own comfort or enjoyment, so a major portion of her energy is devoted to insisting on the character of service that she wants, and complaining vehemently whenever her desires are not met. As to physical work of any sort, she has neither ability nor desire for it, always having regarded that as belonging to servants—the work of occasionally fixing over some clothes with a nurse's help being her limit in the way of doing for herself. Without active interests except in her own amusement, there is little stimulus for the output of energy. Indeed, it is characteristic of her personality that she has reacted to restraint on her liberty—made necessary at times for the sake of others' comfort—by contenting herself in her own room entirely rather than agree to conditions under which further liberty would be granted.

(3) As to the patient's estimate of herself, she shows little evidence of recognizing anything especially unusual or pathological in her personality or situation. She frequently jokingly refers to the family temper, which admittedly is more prominent in her case than in the rest, but even after she has given a perfect tirade of abuse to some one who has happened to incur her displeasure, would not admit having been discourteous. She regards herself as kind to her nurses, always fair, and even admits—without any undue pressure being used—that she " is a lady, born and bred." Naive in the extreme in her self-revelations at times, she gravely admits that she is not faultless; that she is somewhat selfish (but not so bad as the rest of us), but avers complacently that she is about as good as the average—with which she is quite content—and that for any faults she possesses, her parents and not herself are largely responsible.

(4) When we turn from her thought of herself to the crucial point of her relations with her environment and ability of adaptation, we strike the keynote of the situation. Sociability we must grant her, if that is indicated by an intense desire to have some one to talk to, and to whom she can indulge in reminiscences of various members of her family, or gossip of acquaintances, present and past. But if a capacity for a certain amount of " give and take," as we popularly say, a willingness, and even a purpose, to extend courtesy and friendliness in order that the same may be forthcoming from others, and more fundamentally, if at least some ability and desire to see another's point of view be essential to a normally developed social instinct—then there is a very marked deficiency in this development. For in the sense that the patient seems unable to appreciate that there *can be* any other point of view than her own, she is a sort of " unreconciled aristocrat " in a democratic community. With a sense of dignity, family and personal, that reminds one of the attitude of the old-time Southern planter to the " small fry " around him (she claims relationship to old Virginian families, by the way), and that puts all intercourse with others largely on a plane of gracious condescension on her part and humble acceptance on theirs, and that makes her regard any concession to " arbitrary requirements " as evidence of weakness, there is no real basis for adaptation to circumstances. By her view, the environment, indeed, should be

adapted to her. Quite typical of her attitude in this respect is her frank statement that "Dr. —— and Dr. —— are my employees," in exactly the tone which might be used in speaking of the manager and clerk of a hotel, and this in spite of the unpalatable fact—which she usually chooses to ignore—that she has been legally committed to their care. Such an attitude towards those around her, of course, renders any normal social intercourse impossible.

Even more fundamental than this is the fact that she seems unable to really grasp her own situation. Shrewd enough at times in picking flaws in others—even priding herself on her sharp tongue—she totally ignores any factors which would be at all embarrassing to her own self-esteem. At times, it is true, she will laughingly admit some weakness, but if one dares to agree with her, they are regarded as "extremely impertinent." The fact that one can hardly insist on a purely business basis for relationship with others, and continually treat them as underlings, and then expect cordiality and almost servile consideration and forbearance, evidently does not occur to her at all. Neither does she regard it as strange to inform one of what she regards his faults in detail—not necessarily hampering frankness by courtesy in doing so—and within a few minutes making personal or family revelations which would be usual only between close friends. Instances of this utter lack of self-insight might be multiplied indefinitely, but enough has been said to show that the essential elements to an ability for successful self-adjustment are absent. Desiring little aside from her own comfort or amusement, a shortsighted insistence on a point of dignity frequently prevents even that being secured, and such blindness results, of course, in self-defeat.

If one would mention those qualities which go to make the life of an individual truly socialized, they are more or less conspicuous by their absence in this case. Tact is entirely lacking, as I have said; there is obedience only to physical necessity; any stimulus to cooperative action in altruistic interests is largely lacking; even the careful regard for the rights of others is made impossible by her attitude towards them, and on the whole, this viewpoint inevitably tends to distort her views of the truth in all sorts of ways, resulting in exaggerations here and under-estimates there until in the end her conceptions are often far enough removed from reality—often ludicrously so.

(5) It is in keeping with the patient's character as so far sketched, that her moods are all transient in duration and superficial in character. Living her life on the surface of things, there is a somewhat irregular alternation of placid acceptance of the daily routine and a vehement rebellion when some desire has been thwarted, or her egotism has received some unusual check. On one hand, this placidity may rise to enthusiasm concerning some pleasure she has enjoyed, especially if it reflects dignity upon herself or family, or on the other, her dissatisfaction will frequently show in a general belligerent attitude and abusive speech to any who happen to come within reach at the time. But neither, on the one hand, is the placidity the result of a carefully considered acceptance of a situation, nor is the rebellion the fruit of a reasoned-out plan which would change it, so that sudden changes often occur, from a mood of amiability to one of faultfinding or quarreling, or vice versa, without any logical reason therefor. In short, the patient's moods are in keeping with her personality—shallow and changeable with every wind of circumstance, corresponding with the satisfaction or thwarting of the caprice of the moment.

Just here a note would be in place in regard to her relations with her nurse-companion, with whom she naturally comes into closer contact than with any other of those around her. Frequently she professes a desire to be both fair and kind, and a belief that she is so; but never hesitates to inform whoever may be filling that place that she is "lazy, impertinent," and even, in times of some especial irritation, that she is "devilish." If, as rather frequently occurs, she finds her liberty restricted because of the effect of her sharp tongue on other patients, inevitably it is the nurse who has "made the trouble," as she conceives several of them "find delight in getting me into hot water." If one has reported anything unfavorable to her, she is, of course, "a sneak," and if patient is forced to do something against her will, those responsible are naturally "bullies" in her eyes. The attitude of the inadaptable aristocrat comes out clearly in this as in all other relationships, and the nurse receives advice, criticism or abuse, depending on the mood and circumstance.

To other patients she is either polite in a " grand dame " manner or else impertinently curious. Delighting in gossip and possessing a shrewish tongue, she can set more people by the ears and stir up more trouble than most people with many times her opportunities. Hence has come more or less isolation of life.

(6) Turning from these rather general considerations, we will take up briefly the instinctive demands and traits of the patient which are more or less clearly related to the sexual instinct. From what has been said above, it follows that though various acquaintances have inspired a genuine liking, and even at times have exerted a sort of fascination for the patient, there has been, nor indeed can be, very little of real mutual friendship, with its mutual give and take, in her life. Numerous companionships, longer or shorter in duration, depending on the accident of circumstance, there have been, and doubtless these have not been without elements of congeniality. For it must be said in fairness that to those whom she regards as her equals the subject can be very amiable indeed; and will even make tremendous efforts to be friendly—when she thinks it worth while. But whether it be due to the inability to genuinely enter into another's life, or to the lack of such an outlook as might furnish a basis for common interests, or to whatever cause, the fact remains that, outside her own family, her life appears to be pathetically lacking in the broadening and enrichening influences which a real friendship brings.

Towards her own family, the patient shows an affection that is at least partially due to the fact that they stand for a sort of extension of her " self," or, as Professor James put it, they *are* her " social self." As they were an old and rather prominent family in the region where her early home was situated, she is proud of them on that account, and, reflexly, of herself as one of them on the same score. Growing up at a time when the men of the family were regarded as the members to be followed and deferred to, she has always accepted with little or no objection the line of action decided on by her brothers—one of whom she quite frankly refers to as her guardian. Her own life being lived within rather narrow limits, her chief topics of conversation and interest—outside her own routine—are found in the past and present adventures, achievements and doings of one sort or another, of her various relatives, near and remote. Practically dependent for many things on several members of the family, she never shows resentment at the situation, but indeed, in a matter-of-course way, seems to appreciate what they do for her. Jokingly, she will relate remonstrances made by her brothers on her inveterate habit of descanting on " the family " to all listeners, but does not seem to see that it should give them any reason for embarrassment. A creature of impulse here as everywhere, her real regard for her family does not prevent conduct which is both annoying to them and in exceedingly bad taste. But here, too, the underlying factor is the undeveloped judgment and the lack of initiative and self-reliance which is characteristic of the whole personality.

As to her relationships with the other sex, though the patient will often casually refer to some one as " an old beau of mine," there do not seem to have been any real love affairs in her life, and her social intercourse with the male sex seems to have been largely limited to chance acquaintances of dancing school and summer resorts. She, herself, says that men have never especially attracted her—with the exception of one physician, who at one time seems to have impressed her very strongly—partly no doubt by his learning, for which she has quite an admiration. That this gentleman felt there was some danger of her regard going to indiscreet proportions seems indicated by the warning she says he gave on one occasion that the " personal note " must be kept out of their relationship or it would become necessary to drop it. Outside of this more or less " professional friendship "—which really ended years ago, but the embers of which she still carefully cherishes—and the semi-occasional visits of members of the family, she has not, for years, had practically anything to do with members of the other sex. That is, there have been only the visits from the physicians under whose care she is, and the merest exchange of civilities with any whom she may meet on rare occasions when she is invited to any social gathering. This does not mean, however, that she is averse to *attention* from men—not at all. For, indeed, she always goes over with considerable satisfaction and in full detail such attentions as do come to her. But rather, there is no evidence that she has ever been deeply stirred by any *" affaire de cœur,"* to use her own term—nothing more than her vanity has ever been touched. Nor, indeed, does she seem either to greatly mind the deprivation of masculine society, or regret a rather unromantic past.

On the other hand, the patient has shown rather a marked tendency to form attachments—sometimes very strong ones—to members of her own sex. This has been marked enough, indeed, to afford reason to call her homosexual to some extent at least. She, herself, often speaks of her girlhood habit of idolizing, for a time, one after another of her older girl acquaintances, these fascinations usually lasting only a short period, so that she would frequently be called " fickle " by those who knew her well. Later on, there were at least one or two individuals—in these cases women younger than herself—of whom she saw a great deal and on whom she came to depend to an unusual degree. One of these she saw daily for a considerable time, and seemed to crave her companionship in a way that would almost suggest a sexual attraction. It is uncertain just how much the physical element entered into these attractions, or into the relationships, but there is reason to think that at the time when her self-conrol was least (referred to later on) it formed no inconsiderable part. There is record, too, in her history of an expression of regret on one occasion as to the character of her influence over one of these friends—an expression which is significant as coming from one who rarely admits having been in the wrong in any way whatever.

Though she seldom alludes to these " affairs," if the term may be used, there is no evidence that any such experiences have given rise to any " complexes " which would function in the subconscious in the Freudian sense. There seems, indeed, too little self-conflict in her psyche—but rather a fatalistic attitude in such matters—to admit of such activity. On this point there is, as usual, the essential complacency in her self-estimate which makes regret a transient phenomenon, and her own convenience, or desires, the chief criterion as to right in action. In fact, it would seem that in this rather unusual lack of the conflict—which most of us experience to some extent—between one's ideals and their selfish impulses, or perhaps in the lack of an ideal such as would stimulate this conflict, we see one of the fundamental abnormalities of the patient's make-up.

(7) As to her general interests, or hobbies, she can hardly be said to have any such. She enjoys going to the theater, or driving.

She used to ride, dance, etc. But these are, and were, merely amusements, as was also the dabbling she used to do in French and German. The one thing she has ever studied since she grew up is drawing, and in this she really showed some talent, but her interest in it has not been sufficient to induce her to do any work at keeping it up, or increasing her ability. She talks of people sometimes as " interesting psychological studies," and says she used to try to read books of that type, evidently with the feeling that it was a sort of " wonder science." She even secured at one time quite a number of books by Darwin and even Kant, which she kept on her shelves for months without ever sampling the contents or soiling a page, but feeling in a vague way more " cultured " for their being there. In short, she experienced various vague, inarticulate gropings toward the world of knowledge all around her, but has neither acquired the rudiments of any one subject, nor —which is the primary thing—had sufficient curiosity or ambition awakened to care to " go in for " any hobby or even the ordinary accomplishments of the more strenuous sort.

Her religious duties she takes rather lightly, and attends church because she was brought up to regard it as the respectable thing to do. But at the same time, having been brought up in the Episcopalian Church, she often takes occasion to refer unfavorably to another faith, several adherents of which are more or less controlling influences in her environment. Like other aspects of her personality, her religion is rather shallow, and in particular contains very little sense of personal responsibility, but consists more in a childish faith in the efficacy and necessity of a certain " form of words " merely, with very little idea of their significance.

(8) Finally, it is quite characteristic and in keeping with the type of personality that there are no really pathological traits present, such as delusions, or even the commoner phobias or obsessions.

To summarize then, we have an individual slightly past middle life, who has essentially never acquired the fine art of living with other people. This, it must be recognized, is in its perfection the last and most difficult achievement of any individual, and for it a number of qualities are necessary, which are lacking, or present in only very slight degree in the present patient. With only a slight mental training, very small power of attention, and interests limited to her own sense of enjoyment, her horizon is naturally an extremely limited one. When in addition to this there exists an attitude towards herself and others, as I have said, which was typical of the " unreconstructed " Southern slave-owner after the war, showing the same inability to adapt herself to new situations, it will be conceded that the essentials to social development are lacking.

Indeed, when all these traits enumerated above are considered together, it will be seen that the keynote to the whole personality lies in that word " nondevelopment." If it be true, as suggested by the studies of Goddard, Fernald, and others, that especially in the adolescent period are developed those qualities such as judgment, initiative, self-restraint, etc., which fit the individual to take his place as a full member of the community, so to speak, enjoying its privileges and carrying the responsibilities of its social life: if this be so, it would surely seem that this patient's development had been arrested during this period. Finally, the whole life seems to be lived on a superficial plane, and presents rather a good example of the course of development in one who has never had the deeper motives roused, nor known the influence of a great emotional experience, with its power to enrich the personality and stimulate it to a self-expression possible in no other way.

Finally, if one turns to the history—family and personal—of this patient, it will be possible to trace the action of the environment on her development in a fairly definite way, though this has been seen in general trends rather than in distinct or single events.

Born just before the outbreak of the Civil War, and brought up at a time and in an atmosphere that thought of the girls of a family as largely ornamental members, taking their support and opinions alike from their fathers and brothers, there was no stimulus toward the acquirement of any education other than a smattering of small accomplishments. As her family were in fairly comfortable circumstances, there was never any question of her preparing in any way to earn her own living, and apart from typewriting—which she took up as a fad for a time—she never attempted the mastery of any " practical " accomplishment. From these things—the fact that there were always servants in the house obviating the necessity for her doing even the ordinary household duties—the patient herself says she could not even make up a bed until she was 16 years of age—undoubtedly comes the attitude which regards all those who do any of these things as of a caste distinctly inferior to her own. In the same way probably came the habit of mind which constantly demands many things done for her which most individuals would do for themselves, and that makes much of her conversation a continual grumble as to the poor way in which, as she says, she is served—the laziness of her nurses, and the general selfishness of all around her, being, as I have said before, a frequent topic for her animadversions. Thus, in the position of her family we find both a contributing cause for the patient's intellectual limits and of her attitude towards those not in her own " class," as she would herself say.

With such a conception as to her own position growing more deeply rooted as she grew older, the circumstances of her home life seemed to combine to prevent the corrective action which social contacts usually bring during adolescence and early maturity. The chief point to note in this regard is that never, as she grew up, was she placed in circumstances that would have forced her to modify her attitude, or given her an insight into any other condition of life than her own. Surrounded practically entirely by those of her own " set," she has never been in a " competitive situation " even in that limited environment. Owing to the fact that her mother's health was poor even in her later girlhood days, there was no regular " coming out," and though she seems to have gone to occasional parties, she does not seem to have given any. At least, she does not speak of having done so, and from the habit of relating in full detail the events in which she has figured at all prominently, she surely would have given such an event as a party, record which its importance to her might seem to demand. In other words, she does not seem to have been in the usual " social competition "—if one may so term the struggle for existence in her station of life. Then, in close connection with this, must be placed the fact that, though once or twice young men called on her for a time, they were evidently never serious in their intentions; nor, as has been said before, was she ever stirred into real feeling for any one of the opposite sex. And in this way, she missed what perhaps would have been the greatest modifying influence to one of her temperament. So much for her social development, if we may so speak of this side of her life.

Then, it is not without significance that the patient herself frequently alludes to heredity as responsible for many characteristics. Her father was considerably older than her mother, and was evidently one who indulged freely rather than temperately in the " good things " of life—which tastes she admits having inherited. He had at times a violent temper—of which she also admits having received a full share—and seems to have paid little attention to the training of the children, being indulgent rather than otherwise. Her mother was also rather indulgent, and in addition her early ill health made it impossible for her to exert a real restraining influence. As a natural result of this lack of early discipline was a lack of self-control which evidenced itself in many ways, and which has had most far-reaching effects.

Devoting years to caring for her mother, she was still able to indulge her own tastes to a fair extent, but had no normal outlet for energies or outside interests to balance her, so when this obligation was removed by her mother's complete breakdown, necessitating care such as she could not give, she seems to have been left " stranded high and dry," or better say, " drifting." She was without purposes, without interests to suggest lines of occupation, lacking the mental equipment which would stimulate her to seek them, and finally, without even the ties which serve to anchor many such a one to a respectable, even if a small, place in the community.

With such an inheritance of tastes and temper, such a limitation in equipment and outlook, and lacking the " fortunate compulsions " which exist in home relationships, it would really seem that things were bound to come out in some such way as they did. As her control over herself became less and less—shown both in increasing indiscretion in the use of stimulants (frequently as a relief after enduring some tantrum of her father) and in outbreaks of her own temper—when she is restrained neither by consideration for others nor thought of results to herself—social life became less and less possible for her. There came to be situations more and more frequently in which her talking or other indiscretion gave rise to comment very unpleasant to other members of the family. Finally, the strain of trying to keep house for her father—then grown very erratic—brought on a real nervous breakdown, and she was persuaded to go away to a sanitarium—aged about 38 at the time.

In that environment, her physical health has been good largely because of the regular régime as to diet and activities, under which she has lived whether or no. But as her control over her tongue has not improved, and her attitude to others has not changed, her life has been necessarily rather isolated. And her characteristic reaction to such restraint—as we have said above—has been to tempestuously deny its justice and then to shirk the situation. That is, rather than adapt herself to the situation, involving sometimes embarrassing admissions and certainly considerable effort, she would accept the limitations. This method of reaction seems to have been characteristic of her personality and is to some extent a key to its comprehension. Consequently, no other outlook than a continued institutional life seems possible.

If such an analysis as this be worth anything, it will serve to show how apparently slight defects, or anomalies of mental constitution operating in certain temperaments, will combine with a train of circumstances—in themselves hard, but such as many others surmount successfully—to bring an individual to total failure as a "contributing member" in our social life. And the attempt to do this must be the present writer's justification—however many be the defects in its accomplishment.

In conclusion, I wish to acknowledge with gratitude the very helpful criticism of Dr. Channing and Dr. G. Stanley Hall in the preparation and revision of this paper.

PARAPHRENIA EROTICA.

A CONTRIBUTION TO THE STUDY OF SYNTHETIC PSYCHIATRY.

Preliminary Communication.

By MORRIS J. KARPAS, M. D.,
Assistant Resident Alienist, Bellevue Hospital, New York.

In the evolution of the paranoic concept the finer differentiation of the various clinical types of delusional state have become more clearly defined. Kraepelin's[1] new group of paraphrenia forms an invaluable addition to the modern classification in psychiatry. To quote from my former paper:

> Paraphrenia forms a subgroup of endogenous dementia and in the clinical picture delusional ideas are the predominating symptoms. In some respects it may simulate dementia præcox, but there is no characteristic disturbance of emotions and volition to such an extent as to bring about disintegration of personality. Abnormality of emotional activity, however, may be noted, but striking apathy and indifference as seen in dementia præcox, are lacking, and furthermore the general conduct is influenced by abnormal thought processes, and not by volitional disturbances. The etiology of paraphrenia is not definitely known and there is no specific type of heredity. It occurs in both sexes, except that the expansive form is limited to women only. The characteristic type of personality is not determined. The development is gradual; the course is progressive and the disease usually terminates in a state of psychic enfeeblement, but without evidences of disintegration of personality, and striking traits of emotional and volitional deterioration. Paraphrenia may be divided into four large forms: (1) systematized, (2) expansive, (3) confabulatory, and (4) fantastic.
>
> 1. Paraphrenia systematica is characterized by gradual development of progressive persecutory delusions and grandiose ideas, which appear in the latter part of the disease. As a rule the personality remains intact.
>
> 2. Expansive form. In this form of paraphrenia, exalted ideas of grandeur with a preponderant elevated mood and mild excitement constitute the characteristic features of the disease picture.
>
> 3. Confabulatory form. In this form of paraphrenia, falsification of memory is the prominent feature in the clinical picture.
>
> 4. Paraphrenia phantastica is dominated by exalted productions of marked fantastic, loosely connected, changeable delusional ideas.

To the class of paraphrenia belongs a group of cases in which the clinical display is characterized by hallucinations and delusions of an erotic coloring, and this disease picture I propose to term as *paraphrenia erotica.*

In this preliminary communication, no attempt is being made to present a statistical study of this interesting group of cases, but rather to outline briefly the symptom-complex of paraphrenia erotica.

It is worthy of note that such cases usually develop in the female sex who are either widows, old maids, divorced or separated wives, or married women in whom the sexual life was irregular or displayed some other anomalous features. For instance, one of my patients was married, but for five years prior to mental breakdown had not indulged in sexual intercourse because of apparent frigidity.

The psychosis becomes manifest in middle or past middle life, between 40 and 50; the average is about 45 years.

The development of the disease is of rather gradual onset or subacute, and rarely of sudden origin.

In the clinical picture, *hallucinations of hearing of a sexual coloring are the first and the dominating symptoms.* The patients hear voices calling them vile names, for instance, as one of my patients expressed: " In the latter part of March I began to hear voices calling me all kinds of names, saying, ' She is my wife——,' ' she is a bad woman——,' ' this one makes too much money—— ' and I thought that they meant by it that I made too much money in an immoral way. They accused me of making love to the priest in church. They also said that I had husband and children —that I left my husband because I was in love with the priest, and that men come to love me. They intimated that I was going to the priest and got money, meaning that I am bad." Another patient described her experiences in the following manner: " I hear them calling me a prostitute, and that I did not live with my husband, and accuse me of being intimate with other men. Their object in calling me names is that I should fall for them, that is, to give myself up and drive me out on the street. They would pick me up on the street and take me to white slavery in order to make money out of me." Still another patient gives the following graphic account: " A year prior to my husband's desertion (had no sexual relations for two years because husband was ill) I began to hear people make remarks, saying that I was a bad woman, and that everybody had relations with me. I heard them saying, 'Everybody is doing her——,' 'that she associates with negroes and policemen——,' that I had sexual relations in cellars, on the roof and streets, etc. I also heard voices calling 's— b——,' 'w——,' and that everybody was doing me." Another patient told her story as follows: "Three years following the death of my husband my trouble began when I noticed that people commenced to annoy me by talking about me, particularly trying to hurt my personal character, and that I was a bad woman, that I had men and that I made money not in a proper way, that I was a prostitute. I also heard men say that they were my husbands. These voices grew worse and worse, and I was followed by men and women with the object of scandalizing my name."

In addition to the erotic content, other forms of hallucinations may occur, which may be threatening and persecutory in character. In some cases the sexual trend may assume a symbolic form. These voices come both from men and women, usually from the former; and they hear them in both ears.

Olfactory hallucinations may be observed, rarely visual or haptic.

Delusions of persecution and ideas of reference form a part of the clinical picture, which contain a sexual undercurrent. However, they are often poorly systematized and elaborated upon. As one of my patients puts it: "I have been followed on the streets by men or private detectives. I think that some one is trying to run me down." Another patient maintained that she was followed by her former lover, and that he was likewise responsible for the various kinds of voices. The idea of being followed on the street by men is quite a common symptom. The delusion of being drugged for the purpose of being violated upon is noted in some cases. "At night men would enter my room," a patient said, "and hide themselves. They would use some drugs on me in order to take advantage of me."

Delusions of grandeur have not been met in the early stages of the disease; it is possible that they may occur in the end stages, but only further study would determine this interesting point. However, delusions of personal influence have been observed in some instances.

The underlying *mood* shows a consistent reaction, although in some cases apparent apathy was in evidence. However, striking inadequate emotional reactions do not occur particularly in the beginning of the malady. At times the patients are inclined to be irritable, sulky, suspicious and excitable, but this is determined by the psychotic content.

The stream of thought is coherent, and the patients are able to give a good account of themselves; no circumstantiality, rambling productions or any other evidence of disturbance in the trend of thought is observed. Likewise, retardation or blocking of thought is not a significant symptom. Memory and orientation are intact, and the personality manifests no distortion. The general conduct is controlled by the morbid ideas. However, occasionally the patients may become excited and disturbed, yet such phenomena are not of an impulsive nature as in dementia præcox, but are determined by the ideational content. Not infrequently the patients are brought to the hospital because of such excitement or because of their threatening attitude towards their imaginary foes.

The following case will serve as illustration:

Family History: Father had a temporary mental upset from which he recovered. Maternal aunt was insane.

Personal History: The patient was born in Ireland, 44 years ago. Her early development was uneventful. She came to the United States at the age of 22, and here she married a chronic alcoholic from whom she was separated for 20 years. She had one child by this wedlock, who is alive and in good health. She has also an illegitimate child who was born prior to her marriage.

She is of moderate habits, and is said to be of a quiet and seclusive disposition. She had no convulsions or fainting attacks. She did housework, and was considered efficient.

According to the patient the first mental symptoms developed in 1913, soon after she elicited sexual intercourse with a certain married man. Following this she noticed that neighbors began to talk about her to the extent of scandalizing her reputation: they said that she was a bad woman; that she did not go out working to earn her living, and that she would stay home and "earn it in other ways"—the patient said—"which I suppose they meant that I was a bad woman—that I was making a living by having men call on me and pay me money for having relations with them. They also said that I made charges against white slavery which I did not. As a matter of fact I never made charges against anybody. I heard them say distinctly, 'You are a bad woman, you don't work, you get money for bad purposes.' The whole neighborhood was against me and I had to move to the Bronx a year ago because of these annoyances.

"Recently I heard that my son was dead—that he was arrested. Once I was sick and they accused me of getting rid of something, meaning that I had a miscarriage. Three or four weeks ago these voices became worse and I heard them shouting and screaming, saying that my son was dead, and I thought that my son murdered that married man who had relations with me two years ago. In fact I had such a dream in which I saw this scene."

She also heard voices telling her that she had an illegitimate child and they told her that should she not admit him to the house, they would make trouble for her, and that her other son would leave the house or would be killed.

These voices came from the street, and both men and women talked to her.

She also perceived peculiar odors, especially from women who would come in contact with her. A few times her food tasted rather peculiar and for this reason she did not care to eat it.

She maintained that the neighbors turned against her as soon as they found out she had had sexual relations with that married man. People on the street would talk about it and laugh at her, and once the priest in the sermon referred indirectly to her case, implying that she was an immoral woman. She felt that there was a conspiracy against her, but there was no systematization to these ideas. She also stated that at times she feared that she might be arrested because she "talked back" to these voices, and slandered them in return.

At times she would become excited and restless, but these episodes she explained by saying that the voices forced her to do so.

Her mood was consistent. When she heard these voices talking to her she felt nervous, much annoyed, and would get excited. There were no evidences of any indifference or marked apathy.

She spoke in an ordinary tone of voice; her speech was coherent; her answers were relevant. She gave a very good account of herself and memory for the remote and recent past showed no impairment, and likewise orientation was intact.

She exhibited no insight into her condition, although she admitted that she was nervous, nevertheless she maintained that the voices and annoyances were real. Her judgment regarding her situation was rather faulty.

In her manner she was natural, and there were no evidences of constrained attitudes or impulsive acts. Her general conduct was dominated by these psychotic symptoms.

There are a few important facts in the history of her life which are important to bear in mind in order to understand the underlying dynamics of the clinical symptoms. At about the age of 20 she gave birth to an illegitimate child; she was ruined by a man and instead of marrying her he tried to scandalize her reputation by claiming that he was not the only father of the child. Because she was poor she had to go to the workhouse in Ireland and later came to the United States. It is important to bear in mind that she married a man who was a chronic alcoholic, and indeed her matrimonial life was very unhappy. Soon after marriage she separated from him. During this whole time (about 20 years) she has had only three times sexual intercourse; twice with her husband and once with that married man two years ago. She admitted that she had sexual cravings and that occasionally she masturbated, but not habitually or to excess.

From the somatic side the patient showed no signs of an organic nervous affection.

In this case the prominent symptoms are active hallucinations of a sexual coloring occurring in a woman of middle age in whom the sexual life was abnormal.

The exact etiology is not known, except for the fact that sexual repression is of a significant dynamic import is quite evident, and indeed, the trend of the hallucinatory content proves this fairly well. The *wish-fulfillment* which is expressed in the negative way is quite striking. In many cases, the " shut-in " personality can be demonstrated.

In summing up, it may be said that paraphrenia erotica occurs in women of middle or past middle life whose sexual life as a rule presents some abnormal traits. The onset is gradual, and the auditory hallucinations of a decidedly sexual undercurrent characterize the disease picture. In addition, other psychotic symptoms of an erotic coloring may occur. Because of the fact that this well-defined symptom-complex bears a strong relationship to the paraphrenia reaction, it is wise to keep this group under the name of *paraphrenia erotica.* This form of psychosis is regarded by some as paranoic condition, and others classify it with dementia præcox. It cannot be too strongly emphasized that from the latter it is differentiated by the fact that it appears late in life, and the mental deterioration is not of the affective or volitional type.

REFERENCES.

1. Kraepelin—Psychiatrie, Ed. 8, 1913.

2. Karpas—Kraepelin's Conception of Paraphrenia, Journal of the American Medical Association, 1914, Vol. 63.

ON BOOKS AND READING.

Outline of a Course of Lectures for Nurses in Hospitals.

By EDITH KATHLEEN JONES,
Librarian at McLean Hospital, Waverley, Massachusetts.

(For the A. L. A. Committee on Library Work in Hospitals and Charitable and Correctional Institutions.)

FOREWORD.

In a paper entitled "The Book and the Nurse," published in the *Bulletin of Iowa Institutions* for July, 1913, Miss Miriam E. Carey, Institution Library Organizer for Minnesota, wrote as follows:

> Books and book lists, however good, are not enough in themselves. The personal guidance of some individual who is in close touch with the reader is absolutely necessary if there are to be good results from the reading. In any ordinary library this person is the librarian; in a school it is the teacher; in a hospital it is the nurse.
>
> The influence of the nurse over the patient has its source in the patient's dependence upon the nurse in all the affairs of daily life. Confidence is inspired by a cheerful, tactful, neat, capable and conscientious nurse. The patient not only trusts this person, but wishes to please him, and often to imitate him. It is plain to see that the largest usefulness of every department in the hospital depends upon the cooperation of the nurses. This is especially true in the library. What the nurses read the wards read. What the nurses sneer at the ward condemns, and who would have the courage to select?
>
> There are nurses who love books and realize that the use of books by patients will conduce to order and contentment in the wards. There are, however, many nurses who have not the reading habit, and who do not care for books. How may the interest of this class be aroused? Will it not be necessary to include lectures on books and reading as part of the course of study in the training schools for nurses? . . . .
>
> Lectures on books and reading for the insane would benefit: first, the hospitals, especially those in which the library is not a distinct department; second, the patients, because they would get books suited to their peculiarities. Special help would accrue to those patients who have not the reading habit. Many would acquire it and their reading would improve with guidance. Third, nurses would acquire through this training, a new professional tool and time-saver in the care of convalescents, for whom books are the most feasible diversion.

What Miss Carey learned while developing the institution libraries in Iowa and Minnesota, every other hospital librarian has sooner or later discovered: her almost absolute dependence on the goodwill and interest of the head nurses in getting books to the patients and interesting them in reading. A nurse who loves books will surely keep her ward supplied with them, and will take pride in selecting suitable reading matter for the patients under her charge and in noting their reaction; but a nurse who knows little of and care less for books will not take the time or trouble to get them for her ward, look after them if they are sent to her, or even attempt to interest her patients in them. Since the hospitals are not able to select for their training schools only those nurses who already are well educated, obviously the next best thing to do is to try to give them, during their period of training, a broader culture and a wider knowledge of the things which make for companionship. Experimenting in this direction, in 1913 McLean Hospital inaugurated two courses for the senior class in its training school—one on the development of the English novel and one on the history of art. These courses have proved very successful. The nurses have responded with an enthusiasm which has made the giving of these lectures a delight, and the effect was immediately felt upon the wards. Nurses read more and better books, and they have interested the patients in the lectures so that many of them have been roused from their lethargy to help, criticise and supplement the nurses' notes from their broader knowledge. To many of the nurses a new world of books and pictures has been opened.

With the fact thus demonstrated that the nurses need only to know books in order to appreciate them, and that their aroused interest means better cooperation, when the American Library Association appointed an executive committee to further the development of institution libraries, one of the first plans made by the subcommittee on hospitals was for an outline of a course of lectures on books and reading which might be given to the average nurse in the average hospital training school—a course which should make the nurse acquainted with the names and characteristics of the great writers in English literature, and at the same time teach her how to use a library intelligently and how to bring the book and the patient together.

In planning this course, the experience gained at McLean Hospital has been of the greatest value. For instance, it was found that the nurses can take a pretty stiff course provided it is couched in simple language and ideas, and terms new to them are carefully explained; that a blackboard, on which to write the outline of the lecture, a list of books to be read, and the names of authors and titles unfamiliar to the class, is indispensable; that a couple or more shelves of "reserved books," where all the class can find them at any time, add greatly to their interest and facilitate their required reading; that they get much better notes from a "talk" than from a written lecture read to them; that, on the whole, they rather like examinations.

Lectures 1 and 2 of the course which follows presuppose a certain amount of library technique on the part of the lecturer; lectures 4 to 12, a wide acquaintance with English literature. Since the lecturer probably will be the librarian, there should be little difficulty in giving these to the class. But lecture 3 requires hospital experience, and it is recognized by the committee that few librarians, unless they have been for some time in institution work or are trained nurses, know very much about the actual daily life with the patients. It is in the hope of giving some definite ideas on ways of getting patients to read that the following notes, made by one of the head nurses at McLean Hospital for the instruction of the nurses under him, are appended. This nurse has charge of the ward for sicker and more destructive men, and at first it was not thought wise to send any books in the least valuable to that ward. This nurse, however, offered to assume all responsibility, and so well have his plans worked out that in six years he has lost or had mutilated only three books. A lover of books himself, he goes to the library once a week, returns books due and takes out about a dozen others—travel, pictures, outdoor books, a little fiction—enters their names in a note-book for his own guidance in returning them, and distributes them to his waiting patients. These are his notes:

> Nurses should not feel discouraged if they are not able to get all their patients interested in books and reading. There are so many reasons given by patients for not reading, such as "I hate to read books because there are words and sentences that refer to my past life"; "I am too sick a man to read"; "What is the use of reading as I am going to be murdered anyway?" There are many patients who are well enough to read in their rooms but who could never go to the library as they do not wish to go,

and they must not be coerced or urged, so the nurses, and especially the head nurses, are under obligations to supply such people with reading matter and picture books. I remember one man was forever reading "David Harum." He would not tell what his literary tastes were and did not want any books taken from the library for him. Soon after permission was obtained to have books on this ward, he was among the first to take one to his room. "David Harum" was set aside and "Mr. Pratt" substituted. It did not last so long as "David Harum." The next day he asked me if I could get him more books by the same author, and before long he was, like many others, Mr. Lincoln's staunch admirer. He now reads every book that comes on the ward, and is a great help when I am collecting books to return when due. He will search until we find every one. He is also the first to look over the new supply, and after a careful perusal he will select one and take it to his room. I know he must read them because he often tells me facts gleaned from them. He is one of the patients who is likely to stay in the hospital for a long time, and it is a great pleasure to help him spend his days as profitably as his condition permits.

Another man used to confine his reading to New England stories. He would not ask for books and did not like to have any left in his room, but when a good opportunity presented, he would go to the sitting-room where the books are kept, look them over, and pick out the New England story I was always careful to have there for him, and take it to his room. When the war broke out, he was much pleased to get such books as "Pan-Germanism" and "Fighting in Flanders." He is not a very fast reader, but it keeps him quiet, and that is more than anything else will do.

All acute cases can be helped considerably, after their excited periods, with books; they may refuse them from the nurses, but if left in a convenient place—perhaps open at an attractive picture—the patients will surely look at them. They may not read them at first, but they will undoubtedly look over the illustrations. "Country Life in America" (bound volumes) seems to have the foremost place for such people, also "Travel" and Black's illustrated books of travel.

For bed-patients, I have found small books of untold value, as they are not heavy or clumsy and usually the type is large and plain and the story short. My most successful books in this line are "Pigs is Pigs" and "The Great American Pie-trust" for humorous books, and "The Perfect Tribute" for something more serious. There are several others equally appropriate, however. As a general rule, patients convalescing prefer something light and cheering.

Books are very valuable for restless and nervous patients. One will often notice a patient of this type stop for a moment at the table, open a book, glance at a picture, walk away; in a little while he will return, open it at a new place and repeat the performance; later he will stop and read a few minutes; then he will take the book to his room. Sometimes it takes a week or two for him to get to the reading stage, but eventually he does.

Others take books because other patients or nurses are reading and they wish to do what the others do. One patient, I discovered, only wanted the particular book I happened to be reading, so when I wanted to get him interested in a book I would sit down in a comfortable chair and begin to read that book. If I praised it he wouldn't take it, so usually something like this ensued: "Is that a good book?" "I like it," I would answer, still reading. "What is it about?" I would tell him that, but not stop reading. Finally, "Would I like that?" "You might." Then almost invariably would come "May I have it?" and I would relinquish it. Still other patients want books because they have always had them at home and they feel in more familiar surroundings with books about. For these patients, if for no others, no nurse should be careless or uninterested enough to have a ward without books.

Patients will go to the library for books, but they will almost never take anything but fiction, so we have another reason why nurses should provide books other than fiction, and here let me say that nurses must be able to select books that will be popular and profitable to those under their care. Nurses can make books popular; a brief description of the book or the author helps a good deal. For instance, an intense interest can be aroused by telling a patient about the author of "A Vagabond Journey Around the World" and saying it was written by a young man who said he could go around the world without any money, provided he was in good health and not afraid of the rough and tumble life. In fact, if a nurse is really interested in his ward, he will find plenty of ways to get his patients to read.

A SUGGESTED COURSE OF LECTURES TO NURSES ON BOOKS AND READING.

1. Use of the library.
    - Classification (or arrangement on shelves).
    - Cataloging; finding lists; new book lists; use of bulletin boards.
    - Charging system; importance of registering books; of keeping tab of books on wards and returning or renewing them on time; of looking out for destructive patients; of keeping plenty of books on wards and changing them often.
2. Reference books and how to use them. (Some suggested reference books: a good modern encyclopedia; a first-class, large, modern atlas; a standard dictionary; Lippincott's Biographical Dictionary, also their Gazeteer of the World; Larned's History for Ready Reference; Brewer's Handbooks.)

    Periodicals, magazines and newspapers: Characteristics of some of these; how best to get them to patients; means of keeping up with current events.

3. On getting patients to read and kind of books for different classes or types of patients: What to avoid; what to suggest; reading aloud. Ward books: especially for men—for women; combinations (*i. e.,* a volume of poetry, a book of pictures, travels, history—not all one kind; or books about a country—for instance, Greece: a short history, travel books, a good translation of Homer, something on Greek drama, architecture and sculpture); books on the topics of the hour; seasonable books (birds, gardens, flowers, etc., for spring and summer; astronomy for winter, etc.); importance of picture books; of small books for those physically weak.

4. The books in the library on ART, HISTORY and BIOGRAPHY; on ECONOMICS and SOCIOLOGY, social service, civic reform, immigration, etc.

Get the nurses acquainted with the best of these books.

5. OUTDOOR books (including birds, animals, flowers, etc., nature essays); farming, gardening, mechanics, other useful arts.

GAMES and OCCUPATION; HANDICRAFTS.

6, 7, 8, 9. FICTION.

Bibliography: CROSS, Development of the English Novel. MATTHEWS, The Historical Novel and Other Essays. MASSON, British Novelists and Their Styles. SAINTSBURY, The English Novel. STODDARD, Evolution of the English Novel. LONG, American Literature; English Literature MACY, Spirit of American Literature.

6, 7. The great story writers: Scott, Thackeray, Dickens, Jane Austen and Trollope; Cooper, Hawthorne, Bret Harte, Howells and Mark Twain; Miss Alcott and Mrs. Stowe; Stevenson and Kipling.

Characteristics of each and their best stories; have the class read at least one of each author.

8. Some of the stories which have become famous: Last Days of Pompeii; The Cloister and the Hearth; Westward Ho! and Hypatia; The Count of Monte Cristo and The Three Musketeers; Les Miserables; Lorna Doone; The Little Minister; Ben Hur; The Prisoner of Zenda; The Virginian. Alice in Wonderland and Through the Looking-glass.

Some of the "big, brave books"; The Woodcarver of Olympus; Christopher Hibbault; The Master of "The Oaks"; The Awakening of Helena Richie and The Iron Woman.

(Have the class read all these.)

Conan Doyle and the detective story; its place in the hospital.

9. Present day writers: Crawford, Churchill, Sir Gilbert Parker, F. Hopkinson Smith, Booth Tarkington, Richard Harding Davis, John Fox, etc. H. G. Wells, Arnold Bennett, DeMorgan, Galsworthy, Locke, Birmingham. Oppenheim, McCutcheon, Rex Beach, Ralph Connor, The Williamsons, Lincoln, Jacobs, Connolly, O. Henry, etc.

Each library will have to make its own list of these popular novels to a great extent; this list is only a suggestion.

10, 11, 12. POETRY.

Bibliography: BROOKE, Four Victorian Poets. SCHELLING, The English Lyric. VAN DYKE, Poetry of Tennyson.

The famous poets: Shakespeare, Milton, Scott, Byron, Wordsworth, Keats and Shelley, the Brownings, Tennyson. Longfellow, Lowell, Whittier, Holmes.

Characteristics of each and their best poems; have the class read something of each; read some poems aloud in class.

12. Some of the modern poets: Eugene Field, James Whitcomb Riley, Lanier's Hymns to the Marshes, Henry Van Dyke. Kipling, Noyes, Masefield, etc.

Some good collections: Palgrave's Golden Treasury; Oxford Book of English Verse; Stedman's Victorian Anthology and American Anthology; Knowles' Golden Treasury of American Songs and Lyrics; Lucas' Songs of the Open Road, etc.

It is suggested that for an examination in this course, each nurse be required to write a paper giving her experience in getting patients to read and the kind of books her patients like, and giving at least three combinations of a dozen books each, suitable for the ward in which she is on duty.

THE PSYCHOSES OF THE HIGH IMBECILE.*

By HENRY J. BERKLEY, M. D., D. Sc.,
Clinical Professor of Psychiatry, Johns Hopkins Medical School, Baltimore.

Generalizing, it is well to remember that the high imbecile from the cradle onwards develops slowly, that he is behind the normal child in learning to walk as well as to talk, that in attention as well as imitation he is backward, that when childhood begins and school life opens he shows up as a dullard or one-sided individual. In his habits he is negligent and untidy, and is often the sport of better endowed companions, an item that has bearing on the whole of his future life. In his class life he is in constant conflict with his teachers, to whom he is a despair.

The final scholastic attainments are, as a rule, a superficial knowledge of reading and writing. Spoken language, on the other hand, is often voluble, though it will be found, on examination, that the vocabulary is a limited one, and that scanty ideas are submerged in a torrent of ofttimes meaningless words. Few are at all proficient in arithmetic, even those who have had a fair oportunity of attaining a good education. With the automatic indrilling of the multiplication table their ability ends; subtraction, division and compound multiplication remaining an unfathomable riddle. Many, fluent in language, cannot even tell the hour by the clock, also in abstract deduction of a simple problem they show no reasoning ability.

When the age of adolescence is reached the rise of the sexual instincts, as well as altered conditions, that is to say, the increased personal liberty and freedom from restraints imposed by parents and guardians, seem to aggravate all their propensities to evil; excesses of all kinds are indulged in, and in especial Venus and Bacchus.

---

* Read by title at the seventy-first annual meeting of the American Medico-Psychological Association, Old Point Comfort, Va., May 11-14, 1915.

At this period lues is often acquired, and plays an important part in their subsequent mental deterioration, but vinous spirit has even a more prominent rôle in the majority in this respect. Few are there among the high imbeciles that do not show its after-effects when psychoses develop, as is evidenced by the hallucinations as well as delusions of persecutory cast.

In the list of delinquencies it may be mentioned that thefts are frequent to obtain the necessities for future pleasures, rapes are usual when money or means are lacking to attract the weaker sex, vagabondage and beggary are common, so that children of respectable parentage are found harboring with thieves and prostitutes to the scandal of the community in which they live, as well as to their own detriment.

Not infrequently, after a course *in vino et Baccho,* the defective inherited protoplasm comes to the succor of the family pride and respect. A few months of excesses, and the hereditary weakling becomes passive, inert, unable to take care of himself in any way, in other words becomes demented, and seeks the sheltering walls of an institution to be cared for to the end of his days.

There seems to be some natural law of premature senescence descending upon members of the imbecile class about the age of adolescence, that renders a future development of viciousness as well as licentiousness impossible, some conflict between the correlation of the internal secretions may be supposed. In any event, the mental development comes to a standstill, with eventual retrocession, it may be after the lapse of only a few months. It should be remembered in this connection, as having a direct bearing upon the subject at issue, that the age of puberty and adolescence is the most trying period in the evolution of the higher cerebral association fibers, rapid growth of the body occurring with advancing maturity of the sexual system, and the cytoplasm for successful development is both deficient and defective. This induces a rapid decline of the neural vitality, and terminates in a mental reduction.

Alcoholism, syphilis, the excessive use of tobacco, late hours, and overdrain upon the sexual organs, all play a decided and important part in the immediate mental downfall of the defectives. Few examples of hallucinations are found without some antecedent history of alcoholic misuse.

The stigmata of degeneration in the high imbecile class are much less frequent and pronounced than in the lower types, also the physiognomy is less explicit in its tale of intellectual barrenness; in fact, many of the so-called moral, emotional or impulsive cases are sufficiently high in the intellectual scale not to portray to the untrained mind their actual degree of weakmindedness, and accordingly pass for normal individuals among the masses. It has been said that "clothes make the man," and certainly a well-groomed individual offers less to the eye that is suggestive of mental defect than those that are unkempt and untidy. But, by examination with the Binet method, or with the simpler arithmetical tests, together with questions as to judgment and insight, a fair knowledge of the degree of intellectual endowment may be ascertained within a few minutes, and the results are often surprising, showing as they do incompetence that was entirely unsuspected from the surface.

The psychoses of the moron class are extremely varied, complicated, interesting, and have not been sufficiently studied, mainly because the majority of mental workers have not been taught to recognize the imbecile in his highest development, the pedestal on which he stands nearest to normal man, and while they recognize that certain cases running the course of an atypical catatonia, hebephrenia, or early dementia are of subnormal mental grade, place but little stress upon this fact.

Grading carefully upwards from the lower types of imbecility to the moron group, the last with but few physical and still fewer gross psychical defects, we find that a high percentage of the permanent inhabitants of institutions for the insane (excluding seniles and paretics) have a defect in their mental gearing of the most varied degree and characteristics, with which is coupled a psychosis.

Naturally, the insanities of the high imbecile fall among recognized types of adolescent psychoses, but at the same time, and in endless variety, they depart from the classical forms of these maladies in symptomatology and duration.

Tabulated, we find cases in the clinic resembling:

1. The dementia præcox group:
    - Catatonia.
    - Hebephrenia.
    - Paranoid forms.

2. The alternating insanities:

Periodic and circular forms, with pathological exaltation and depression.

Stuporous states, either simple or alternating with motor excitement.

3. The dementia group:

Dementias progressive in character, without depression or exaltation of any duration.

4. Cases with especial pathological disturbance of hearing, sight and gustation:

Acute and chronic hallucinosis.

5. Cases that are especially characterized by the presence of false ideas:

Acute and chronic delusional states.

6. Cases whose especial feature is the occurrence of impulses or impellant acts of a pathological nature:

Obsessions and pathological impulses.

But the course of the first two of the above divisions does not follow closely the cardinal types. Most notable in all of them is the tendency toward a quick dementia, which is final and often complete, but even to this rule there are certain exceptions, especially among those showing a simple motor excitement free from delusions and hallucinations. Another difference is the short duration of the malady in contrast to the longer endurance of the typical cases of catatonic or periodic insanity, the psychosis ending in a few days to weeks in a quick return to the former mental state, or an equally rapid mental reduction and passivity. Few indeed are the uncomplicated cases that have not indulged in spirits or exhausted their vitality in prolonged excesses, homo- or hetero-sexual.

Furthermore, and as a cardinal point, the onset of the psychosis is more sudden and without the preliminaries of the catatonic or manic depressive; the attack is briefer, the return to former mentality more complete within a shorter space of time. Infrequent are hallucinations in the absence of alcoholic abuse.

Returning to the above classification and simplifying it to a certain extent, we find:

(1) States of pathological exaltation, with the features of short course, and rapid termination in a dementia or return to the former

mental state. These forms of excitement are common, especially with adolescent youths, are uncomplicated by alternating depression or hypochondriacal fancies; in fact, delusions themselves are infrequent or of the simplest character. The outbreak of the malady is characterized by a sudden onset, violent as well as extravagant tendencies, logorrhea with incoherence in the assemblage of ideas, also by a varying degree of intellectual confusion during the period of excitement, this passing into actual stupor, out of which the patient returns to his natural state. The motor symptoms in this class are on the whole more pronounced than the mental ones. The duration of the entire seizure is short, a few days, infrequently a few weeks, with restitution or dementia according to the strength of the inherited protoplasm. Attacks in those fairly endowed are liable to be repeated from time to time. Occasionally a patient is seen that has had only one, though afterwards there may be times of irritability not amounting to an actual psychosis.

(2) States of pathological exaltation in individuals of a slightly higher mental grade than the preceding class. With thought confusion are now mingled delusions of pronounced but varied character. Dependent upon the abuse or non-abuse of spirits, their content varies from simple delusions of personality and surroundings, power, wealth, above all, egotistical tendencies, to varied ones of persecution, mainly attributed to persons with whom they have been in contact in their own household or at the workshops. These false ideas are systematized to the extent that they do not vary greatly from day to day, and may last for several weeks. Hallucinations with even moderate alcoholics (or cocaine habitues) are usual. Those of hearing are of a persecutory cast, unfriendly voices telling them that they are foul with syphilis, are no longer men, that their wives are unfaithful. Those of sight are also frequent with this class; they see figures or pictures moving in the trees. God or the devil appears and commands them to do certain acts. Hallucinations of being covered with creeping vermin that burrow under their flesh are also common. Gustatory deceptions are much less frequent.

With the major part of this class one attack brings them into the domain of the asylum, and though they may recover to the extent of becoming quiet and manageable, the finer part of their faculties is blunted, and they are no loner capable of returning to their avocations, or, unassisted, of attaining to any steady employment, though they may do fairly well under the guidance of another stronger mind. Eventually they slowly descend in the mental scale, or, after the recurrence of repeated attacks, become completely fatuous.

(3) Cases that show a variation from the second type in so far that after a period of moderate pathological hyperactivity, with delusions and frequently hallucinations, deep confusion begins, ending in stupor with catatonic rigidity, negativism, as well as resistance to passive extension of the extremities. The circulation is lowered, the heart's action feeble, the extremities cyanotic, the vitality falls to a low ebb. Death occasionally occurs in this state of stupor, without any return to consciousness. In the depths of the lethargy the quivering eyelids are the only sign of life; the pupils are widely dilated, the face is pallid, while the respiration is slow and uncertain.

In the less severe cases partial restitution takes place within a period of two to four weeks, the victim no longer requiring to be tube-fed and is more energetic, but the delusions continue unabated, slowly to fade in the darkness of a dementia that is final.

(4) Paranoid tendencies are frequent with the high imbecile. Alcoholism and masturbation are the foundation stones, in common with other agencies of a depressant nature. In the brain of the three-quarter wit, probably after a series of misfortunes, mainly owing to their incompetence or inattention to duties, arises a time when they evolve the idea that the hand of mankind is against them, that they are kept down by favoritism toward others, and kept out of their proper sphere and deserts.

The essential egotism of the moron, deep lying and always ready to take offence when their errors of omission or commission are corrected, renders them unduly sensitive to the "blows of unrequited fortune"; they shrink more and more within their inner selves; introspection with alcoholic excesses soon lowers the mental vitality, false ideas that they are the object of persecution or sport by their fellow workmen arise; soon aural hallucinations are added to the delusions that they are the subjects of unwarranted hostility from their fellows; unfriendly voices assail them, coming from whence they do not know, as they reach them on the street or in the quietude of their own abodes. Soon attacks on employer or fellow workmen supervene, the police interfere, and the gates of the asylum open.

After entering an institution the mental downfall is usually rapid. At first voluble with their complaints to the medical men or attendants of the institution, there is soon withdrawal of association with the other inmates, intensification of the persecutory ideas, which is followed within a year by a deeper and yet deeper dementia, though this class rarely become so entirely fatuous as those of the first divisions.

(5) Cases resembling the alternating (manic-depressive) insanities. From the narrow egotism of the moron class it may readily be imagined that examples of depression are far less frequent than those of excitement with stupor, the true periodic cases standing on a higher plane of mental altitude. Like the states of excitement of classes 1 and 2, they show the same sudden beginning with few antecedent preliminaries, short course and ordinarily rapid termination. With the majority that fall under this category, the stage of excitement is marked by a deeper clouding and confusion than is usual with the manic depressives: ideation is shallower and delusional ideas more pronounced. Motor agitation is sometimes well marked, at others trivial. The periods of depression show anergy rather than delusional depression, while the mental level of the entire psychosis impresses one as being more grave as well as more irremediable than in pure alternating examples.

(6) Stuporous states—not the occasional stuporous conditions of the periodic or of the catatonic, but of a character quite apart from these, and manifesting but little of their symptomatology except for the more prominent element. In the moron, instances of simple stupor, except with women at the time of the menstrual periods, are rare. With little disturbance of the vital functions, and still less of delusional or hallucinatory implication, these individuals for a short time become irritable, restless—as they express it, "nervous"; then suddenly pass into a deep, passive sleep, out of which nothing in the way of varied stimuli will arouse them. They require to be tube-fed and in every way looked after. After the lapse of ten days to several weeks, they suddenly, often in the early hours of the morning, come out of the realms of night into

those of day. During this state of total anergy there are no muscular movements, no negativism, nothing approaching a cataleptic condition, only passivity.

The pupils are widely dilated, the pulse slowed, the respiration tranquil but shallow. The temperature is subnormal. The tendency is to recover after a time, but contrary to the preceding varieties, the malady is not customarily followed by a mental decline, except when the attacks are repeated over and over again. Questions, after recovery, as to their recollection of the phase of stupor, ordinarily elicit little information. Some refer to it as a prolonged uncertain dream, often of painful nature; others have no distinct remembrance at all.

(7) Progressive dementia without active motor or psychic symptoms. Not a great many cases coming under this division have fallen within my notice. The majority were not high in the mental scale, and some had the brand-marks of an inherited syphilis. Spinal fluid tests were frequently positive.

In the earlier stages there comes a time of ill-defined nervous agitation without definite delusions or hallucinations, after which the subjects slowly dement without further active symptoms. Not a few examples show the evidences of a chronic arteritis, sometimes luetic, sometimes of other types, and as definite histories are frequently lacking, it may be presumed that some have suffered from typhoid or other infectious fevers, that, together with the after-effects of the accompanying irritant toxin, has induced a state of chronic nutritional defect leading up to the psychosis. The general bad effects of licentiousness in this class has already been considered.

With a number of ill-balanced children, who have been forced to undertake a school education ill suited to their strength as well as mental endowments, the continued strain of years of effort results at the time of adolescence in a mental decrepitude from which after-treatment is powerless to rescue them, and they relegate slowly to the plane of the dement.

In the first stages, there is a period of ill-defined restlessness with depression of a passive character, but without delusions, hallucinations or motor excitement. Soon this restlessness passes away, and is succeeded by dull apathy, the victims taking no interest in anything about them, remaining dull-eyed to questions or stimuli of varied nature, not even reactive to loud noises or pin pricks. All day long they sit passive in a chair or on the benches, with bowed head and drooping shoulders, eyes directed to the ground, unseeing, with hands livid and oozing sweat, and so remain for months until removed by a pneumococcus or colon bacillus infection.

In addition to syphilis and infectious diseases, it may possibly be that a lack of correlation between the internal secretions is again a principal factor in this passive dementia. Not a few have deficient thyroidea, and occasionally one may feel in the lobes of these organs little hard nodules that are abnormal.

(8) Chronic states of delusion and hallucination are mainly attributable to the after effects of drugs, and, in especial, alcohol. Auditory hallucinations are of more importance than visual ones, as they exert a deeper impression upon the sufferer, being but reflections of the person's abnormal thoughts, and accordingly are not so readily corrected. These false ideas and sense fallacies are in a measure permanent, fixed, in a crude way systematized, have a persecutory cast, and materially influence the lives of the sufferers, becoming to them the most prominent feature of their daily life, as well as influencing all their actions. Eventually they lead up to attacks upon others, or to suicidal attempts. Insight and judgment are seriously affected, and at last there begins a noticeable degree of dementia which deepens as the months advance, the sense fallacies becoming less and less prominent, until eventually lost in the general mental clouding.

We especially desire to call attention in this paper to the fact that the high imbecile is far more prone to the psychoses than man of higher mental development; that practically all forms of simple and complex mental disorders are to be found among them, though a number are represented in simplified form; that the pernicious action of alcohol in particular, as well as other drugs in less frequency, is much more marked upon them than on normal man, and is, in fact, the cornerstone of a vast majority of the delusions and hallucinations that possess them; finally, that few make a complete recovery from any of the forms of psychoses above enumerated, a terminal dementia of quick onset being the rule.

One addendum we desire to make to this article before closing. It is an inflexible law of nature that like can only produce like. The high imbecile reproduces his kind, and unrestrained by ethical laws, as well as care of the future, in ever-increasing numbers; the progeny to be an ever-increasing burden upon the tax-paying community, as well as a sore trial to the upkeeping of the law. If we leave this portion of our population to increase unrestricted and at an unnatural rate in proportion to the total increase of the people, the result is inevitable: they will eventually overwhelm by sheer numbers the producing population, and the race will then sink to a low level. I am reminded of a story read many years ago depicting the earth a thousand years hence. According to the author some fearful cataclysm had overwhelmed the entire world, leaving but few of its folk, and these soon degenerated. But they multiplied again in numbers as well as further lowered in the mental scale to below, far below, the rapine beasts of the forests. Fire they knew not, war and slaughter were their only arts; cannibalism was prevalent. Their single science was to destroy.

The only solution of the problem of the high imbecile is sterilization, and a general law affecting all the states should be enacted, compelling the castration or spaying in all educational institutions or asylums for the insane or defectives of those who are capable of reproducing their kind. Many physicians are opposed to such a law, mainly on the ground that it might produce an increase of venereal diseases, but these considerations are of minor importance compared to a general deterioration of the entire race. *Salus populi suprema est lex.*

SOME OF THE MORE RECENT PROBLEMS CONNECTED WITH THE STATE CARE OF THE INSANE.*

By JAMES V. MAY, M. D., Albany, N. Y.,
Medical Member of the New York State Hospital Commission.

The complete supervision by the state of the care of the insane in institutions has not been accomplished without numerous difficulties. The problems necessarily arising in the development of an undertaking of this magnitude have varied from time to time, and have recently assumed new and entirely different aspects.

We are concerned now not only with the task of caring for the indigent insane at a cost which is already a tremendous burden upon the state, but with the necessity of adopting new measures which will reduce the number of admissions to the institutions and obviate the need of hospital treatment in as many cases as possible.

New York opened its first hospital for the insane at Utica in 1843; the second at Willard in 1869; and the third at Poughkeepsie in 1871. These were followed by institutions at Middletown in 1874; Buffalo in 1880; and Binghamton in 1881. The first steps toward entire state care of the insane resulted from legislative enactments in 1889, since which time eight new hospitals have been provided for. The insane were not entirely removed from county houses and asylums until 1893. The number of patients in the civil state hospitals has grown from 16,006 in 1890 to 33,357 in 1914, an increase of 108.4 per cent.

The overcrowding in the institutions in April, 1915, was 6,105, or 22.2 per cent. New York now has 14 state hospitals with a capacity of 27,476; 10,000 acres of land in connection with them, and thirty-five millions of dollars invested in lands, buildings and equipment. This does not include the institutions for the criminal insane. The maintenance of the hospitals during the year 1914 cost $6,684,376.18. The legislature appropriated $104,054,987.56 for the maintenance of patients from 1891 to 1914, inclusive, and $18,571,991.39 for additions and improvements.

---

* Read by title at the seventy-first annual meeting of the American Medico-Psychological Association, Old Point Comfort, Va., May 11-14, 1915.

Approximately one-sixth of the current revenues of the state are now being expended for the care of the insane. It will readily be seen that this imposes a burden upon the taxpayers that makes some kind of relief imperative.

The various procedures which have been instituted or proposed with this object in view may be summarized as follows:

(1) Measures on the part of the state for the prevention of insanity.

(2) Dispensaries and out-patient departments.

(3) Better care of the insane pending commitment.

(4) Supervision of paroled and discharged patients by after-care workers.

(5) The care of the insane in psychopathic wards and hospitals.

(6) The return of non-resident insane to other states.

(7) Federal legislation to prevent the immigration of the alien insane.

(8) A bond issue for the construction of additional buildings and new hospitals.

These proposed methods of alleviating the existing conditions will be discussed in order:

Measures for the Prevention of Insanity.

The fact that 7.4 per cent of the first admissions for the year ending September 30, 1914, were forms of alcoholic psychoses and 12.4 per cent diagnosed as general paresis, a total of 19.8 per cent of all the first admissions, shows conclusively that purely preventable diseases play an important part in the etiology of insanity. Twenty-four per cent of the men and 6.8 per cent of the women admitted to the Manhattan State Hospital during the last year suffered from general paresis. The researches of Hoch, Meyer and others showed that many cases of dementia præcox and other psychoses are due to faulty mental mechanisms and are therefore largely amenable to preventive measures. Every effort has been made to bring the importance of these facts to the attention of the public and free use of the press has been made for this purpose. A special mental hygiene number of the *State Hospital Bulletin* is now in preparation and will be issued for general distribution in a short time. Occasionally mental hygiene conferences have been held by the State Charities Aid Association in various parts of the state, and a very general interest has been shown in this subject by the public. The State Hospital Commission has maintained an elaborate exhibit at the annual State Fair at Syracuse for a number of years, and this exhibit has also been used to good advantage in other parts of the state, particularly in the larger centers of population.

Attention has been called to the etiology of insanity and the fact that many cases are preventable or manageable. Pamphlets on insanity have been widely distributed in connection with these exhibits and conferences. In addition to this, numerous papers have been read at public meetings by physicians from the hospitals and efforts made to enlist the cooperation of medical societies in mental hygiene work. The State Charities Aid Association has disseminated thousands of pamphlets relating to the subject of insanity, and has done valuable work in the education of the public along these lines. The State Hospital Commission contemplates the establishment of a bureau of prevention and after-care as soon as funds can be obtained for this purpose from the legislature, an undertaking which will eventually lead to definite and practical results.

Dispensaries and Out-Patient Departments.

As far as possible with the funds available, the commission has encouraged the state hospitals to establish dispensaries and outpatient departments for the care of cases not requiring hospital treatment and the supervision of paroled and discharged patients. This work when developed to the maximum will unquestionably have a very appreciable effect in reducing the number of cases committed to the care of the hospitals. Dispensary work has been undertaken already by the Rochester, Hudson River, St. Lawrence, Long Island and Gowanda state hospitals. At the Rochester State Hospital 225 patients were examined and given medical advice by members of the staff during the year. About 300 persons consulted with various members of the staff of the Buffalo State Hospital during the same period. The Long Island State Hospital conducts a dispensary at the institution as well as a downtown clinic. At the hospital 53 persons called for advice and treatment during the last fiscal year, and 37 visited the downtown clinic during the first three months of its existence. This phase of work is as yet in its incipiency in New York State, but it is certainly very promising. The results that can be expected from early treatment in dispensaries and out-patient departments will be shown by a study of the hospital residence of the patients discharged. Of those discharged as recovered during one year in the New York State institutions, 54 per cent had a hospital residence of less than six months, 29 per cent less than one year, while only about 2 per cent had been in the institutions for five years or more. Unquestionably a large percentage of these commitments would be obviated by early treatment and advice in dispensaries.

Better Care of the Insane Pending Commitment.

The laws of New York State delegate to the local health officer the duty of caring for the insane pending commitment and the responsibility of seeing that they are given proper medical and nursing attendance until they can be removed to a hospital. It is now absolutely unnecessary under any circumstances for insane persons to be placed in a jail or police station until a mental examination can be arranged for. When the condition of the patient is such as to require immediate care and treatment, he may be admitted on the petition of a friend or relative, after a medical certificate has been properly subscribed to by two qualified examiners in lunacy. In such an event, the order of a court providing for the patient's detention must be obtained within ten days. When the patient is dangerous to himself or others, and there is no proper place for his detention pending commitment, the law now gives the superintendent of the state hospital authority to admit such a case upon the petition of the health officer alone. A court order of commitment must be obtained within ten days or the patient released. The superintendent has the sole power to determine whether such a case is a proper one to admit under this provision of the law. These arrangements make it possible to remove immediately to the hospital people who have been taken often heretofore to jails and deprived of early treatment at a time when it is most important.

Supervision of Paroled and Discharged Patients. Social Service for the Insane.

At the present time about 1400 patients are temporarily at their homes on parole from New York state hospitals. This number of patients is equivalent to the entire population of one of our smaller state hospitals. The importance of this arrangement from a purely financial point of view is well worthy of note, leaving entirely out of consideration the comfort and convenience of the patients concerned. At a per capita cost of $210, this means a saving to the state of aproximately $294,000 a year. The possibility of keeping these patients at home for any extended period depends largely on their careful supervision by so-called social workers or after-care agents. As far as the finances of the state will permit, trained workers have been assigned to the various hospitals for this purpose.

The Care of the Insane in Psychopathic Hospitals and Wards.

Attention has already been called to the large percentage of first admissions that leave the hospitals after a very short residence. A large proportion of these cases can unquestionably be cared for in psychopathic hospitals or in wards of general hospitals. There should be such institutions or wards in each county, or at least in every large center of population in each hospital district. These wards could also be used as places of detention. Many patients would undoubtedly be returned to their homes without the necessity of a commitment to a state hospital. The financial saving alone would be very large. The expenses involved should be a charge upon the county or be met by contributions from other sources. About 5000 cases are admitted annually to the psychopathic wards of Bellevue Hospital in New York City, and a large number to the corresponding pavilion of the Kings County Hospital in Brooklyn. The Michigan State Psychopathic Hospital has received 1397 patients since the date of its opening in 1906. Only 407, or 28 per cent, of these cases were transferred to state hospitals. Of 1342 discharges, 218 were recovered and 384 improved. The per capita cost of this institution is only $1.18 per day. Twenty-nine and one-tenth per cent of the admissions during the last hospital period were voluntary cases, 44.8 per cent of the discharges occurred after one month or less of treatment in the hospital, and two-thirds of the recoveries occurred within a period of three months after admission.

Certainly it is economy, if nothing else, to treat mental diseases in their earlier stages. Of the 1751 persons suffering from well-developed psychoses and admitted to Pavilion F of the Albany Hospital since 1902, 222 were discharged recovered and 508 as improved. This means a saving of thousands of dollars to the state, and is a source of economy which should be encouraged and developed.

The Return of Non-Resident Insane to Other States.

During the past 11 years the Bureau of Deportation connected with the New York State hospital service has removed 2358 non-resident insane to the states in which they had a legal residence. This number is equivalent to the total population of the Utica, Buffalo, St. Lawrence, Rochester or Gowanda state hospitals, and represents a saving to the state of at least $495,180, based on the present per capita cost of care. Many of the states have no laws which determine legal residence, although providing for a legal settlement within their boundaries.

The following agreement has been entered into between the New York State Hospital Commission and the State Board of Insanity of Massachusetts for the exchange of non-residents between these two states. It would be highly desirable to have such an arrangement extended to other states for the mutual benefit of all concerned.

Reciprocal Arrangement for the Exchange of Insane Persons Entered into by the State Board of Insanity of the Commonwealth of Massachusetts and the State Hospital Commission of the State of New York.

(1) The term " resident " as used in this agreement shall be a person who has lived continuously in either state for a period of at least two years and, subsequently to acquiring such a residence in either state, has not acquired a residence in any other state by living continuously two years in such other state; provided that

time spent in an institution or on parole from an institution for the insane shall not be counted in determining the time of residence in a state.

(2) All insane residents of either state shall be promptly accepted by the duly constituted authorities of such state.

(3) In certain cases where the relatives or legal guardians or committee or persons legally liable for the maintenance and support of the patient are residents of either state, and some member of the family, or the ward of such guardian or committee, acquires a residence as defined in this agreement in the other state and becomes a public charge because of insanity, for the convenience of the relatives and for humanitarian reasons the person may be accepted by the duly constituted authorities of the state in which such relatives, etc., reside.

(4) Each hospital in each state shall accept promptly persons paroled by such hospital when returned to the institution by the proper authorities of the other state during the period of parole.

(5) For the purposes of this agreement, the residence of a minor shall be considered the same as the residence of the parents.

(6) Accurate and detailed histories are to be presented by each state in asking for the acceptance of a patient.

(7) No person is to be transferred from one state to the other who is not in condition to travel without danger to himself or to others, such transfers, however, to be made as soon as the mental and physical condition of the patient warrants.

(8) In returning an accepted patient under this agreement, the state making the return shall bear all the expenses incurred and the patient shall be accompanied in every case by an authorized agent of the state making the return to the place designated by the authorities of the state to which the patient is returned.

(9) By mutual consent, in any particular case not covered by the terms of this agreement, it may be modified to meet the special conditions.

(10) This agreement, duly signed by the members of the respective commissions of New York and Massachusetts, shall remain in force for a period of five years from May 1st, 1915.

FEDERAL LEGISLATION TO PREVENT THE IMMIGRATION OF ALIEN INSANE.

The importance of this question has already been brought to the attention of the Association and a committee appointed for the purpose of cooperating with other organizations with the object of obtaining federal enactments which will relieve many of the states involved of the tremendous burden. After a thorough investigation by a special commissioner, it has been found that approximately 9000, or over 27 per cent, of the 33,000 patients in our civil state hospitals, are not residents of New York State nor citizens of the United States. This means an expense to New York which approximates $1,890,000 per annum at the present per capita cost of care. A careful statistical study has shown the average hospital life of the insane in the New York State hospitals to be approximately ten years. Based on this method of determination, the estimated cost of caring for the present alien population would reach the astonishing total of over $18,000,000.

The following amendments to federal laws, which have been recommended by the committee referred to above, should be supported by the representatives of every state if we are to obtain any relief from this situation:

1. Providing that medical officers of the United States Public Health Service who have had special training in the diagnosis of insanity and mental deficiency shall be detailed for duty at ports of entry designated by the Secretary of Labor and that the services of interpreters and suitable facilities for making mental examinations and observing cases shall be provided for these medical officers.
2. Providing that the surgeon of each vessel shall make a mental examination of each immigrant before accepting him for passage. (A physical examination only is required at present).
3. Providing a fine of $200 for bringing to this country any insane or mentally defective person whose condition could have been detected by a competent medical examination at the time of embarkation.
4. Adding constitutional psychopathic inferiority and chronic alcoholism to the excludable causes.
5. Making it mandatory for the Secretary of Labor to provide suitable attendants for immigrants being deported, when they require personal care on account of mental or physical disability.
6. Increasing from three to five years the period in which deportation of aliens who have become a public charge in this country can be effected—

unless it can be affirmatively shown that their dependence is due to causes arising subsequent to landing.

7. Providing that deportation can be effected subsequently if proceedings are *instituted* within five years.

NECESSITY OF A BOND ISSUE FOR THE PURPOSES OF CONSTRUCTION.

The large amounts of money now needed for construction as a result of the rapid growth in the insane population should not be charged to the appropriations rendered available by the legislature of any state for a given year. The erection of buildings in new institutions for the care of the insane results in a permanent increase in property value, the cost of which should be distributed over a period of 20 or 30 years. The usual method of including the cost of such construction in the annual budget places an unfair burden upon the taxpayers. The excellent example which has been set by Massachusetts in solving this problem should be followed by other states.

It will be noted that the problems discussed here are almost without exception financial in character. While this is true, it is equally worthy of observation that the remedies suggested are fully in accord with the most advanced teachings of modern psychiatry.

THE VALUE OF ROUTINE LABORATORY WORK IN PSYCHIATRY.*

By PAUL G. WESTON and IRA DARLING,
State Hospital, Warren, Pa.

Hospitals for the insane are rapidly replacing the old asylums, and the patient—not the per capita cost—is becoming the object of medical interest. Governing boards are beginning to realize that a laboratory is not an unnecessary luxury, but an absolute necessity. The evolution has been slow, but it continues, and we predict that before many years the antiquated idea that laboratories are luxuries and not necessities will have vanished.

A hospital without a well-equipped laboratory and without a pathologist on the staff may be compared to the country doctor who treats his patients by guess and by faith. But perhaps I do the country doctor an injustice, for he does treat his patients after a fashion, while poorly-equipped institutions do little more than house the insane. Fortunately science is entering into hospital activity in spite of the encyclopædic ignorance of legislators and trustees, and a laboratory no longer stands as a monument to a refined smuggler in the person of the superintendent. It is some years since Dr. Cowles, Dr. McDonald and others, with more recently Dr. White, have preached the heretical doctrine that the patient is directly benefited by research, and that it is a concrete benefit to the stimulated staff. We believe with others that investigation pays.

We must have all the data obtainable about every patient. It must be gathered from everywhere. The field workers, the physicians, the nurses and the laboratory must each contribute their quota. The function of the laboratory is to contribute biological, chemical and histological data in every case so that nothing may be lacking in the study of each individual patient. There must be routine examinations by the most modern methods as well as the working out of the special problems which are constantly arising.

Perhaps no better example of the value of routine laboratory procedures can be taken than the study of paresis and cerebro-spinal syphilis. The etiology of paresis was proven in the laboratory. It is true that years ago Krafft-Ebbing was convinced that without syphilis there would be no paresis, but the actual proof was furnished by the laboratory. The diagnosis of many cases to-day is only finally settled by routine laboratory methods. Southard[1] in A Study of the Margin of Error in Diagnosis of Mental Disease Based on a Clinical and Anatomical Review of 250 Cases Examined at the Danvers State Hospital, 1904-1908, found that "thirty-five of forty-one cases unanimously diagnosed general paralysis ante mortem proved to be cases of general paralysis, 85 per cent accuracy." These diagnoses were made in the pre-Wassermann days. He further says: "The majority of the real diagnostic difficulties uncovered by this analysis would appear to require more intensive work in the field of clinical pathology." It is now more than five years since Southard published his paper, and during that time clinical pathology has entered the field. Pathological studies in modern hospitals have become as much a necessary and routine procedure as the making of a physical examination. With our present routine methods—the Wassermann reaction, the cell count, the globulin determination and the colloidal gold test—we venture to assert that 100 and not 85 per cent of the cases reported by Southard would have been correctly diagnosed ante mortem.

---

* Read at the seventy-first annual meeting of the American Medico-Psychological Association, Old Point Comfort, Va., May 11-14, 1915.

The number of paretics now diagnosed in the very early stage, largely as the result of routine laboratory work, is surprising, and if there is any hope of a cure surely it is in the early stage of the disease.

In the treatment, too, the laboratory has come to our aid and has given us the only hope, even though it is a very faint one, of cure. The intraspinous treatment, while it has thus far given us no brilliant results, is the outcome of laboratory work.

The etiology, the pathology and the treatment of paresis are the result of laboratory studies, and it may be added that in very many cases an early diagnosis is only fully established after the laboratory findings have been taken into consideration.

In our institutions there are many cases with diagnoses other than paresis who are syphilitic. This information is obtained almost wholly by routine laboratory methods. Several hospitals have reported that from 20 to 25 per cent of their cases are syphilitic. The percentage of paretics in this number varies. In Warren 20.4 per cent of 452 admissions examined routinely showed a positive Wassermann reaction on their serum. Of this 20.4 per cent, 63 per cent had involvement of the cerebro-spinal axis and 40.9 per cent were syphilitic with no determinable invasion of the central nervous system. We may say that each one of the 40.9 per cent is a possible candidate for paresis. These cases, discovered incidentally as the result of routine laboratory work, are subjects for antisyphilitic treatment. They should not be left to develop optic atrophy, cerebro-spinal syphilis or paresis. Not to know the number of syphilitics and not to treat them is gross neglect.

Our diagnostic methods are constantly being added to. To the cell count has been added the Wassermann reaction, the globulin tests, and more recently the colloidal gold test. This last is exquisitely delicate, and in our hands has never failed to give a typical paretic curve in a finally diagnosed case of paresis. We have not had opportunity to determine its value as a differential test between paresis and cerebro-spinal syphilis. Only three cases of the latter have come under our observation, and each gave a typical paretic curve.

Our interpretation of the cell count, it seems, needs revision. The old view, still held by many, that there must be from ten to a hundred or more cells per cubic millimeter of spinal fluid in cases of paresis, and even more in cerebro-spinal syphilis, has not stood the test. One of us in conjunction with Newcomb and Mitchell[2] made repeated cell counts at two-week intervals in cases of paresis and cerebro-spinal syphilis, and found that the number of cells varied from none to more than a hundred in both diseases, and that the variation in number bore no relation to the physical or mental condition of the patient. For years we have been hearing about cell counts and their diagnostic value, the conclusions having been drawn from one or at most a few cell counts. Even to-day we read of the reduced cell count after Swift-Ellis treatment, in spite of the fact that it has been shown that there is often a great reduction in the number of cells when there has been no treatment at all. By taking advantage of routine laboratory methods, Darling, Newcomb and Mitchell have caused us to revise our ideas about the number of cells found and the diagnostic value of one or two counts. Repeated examinations are necessary before conclusions can be drawn. In this same series of cases it was found that three cases of paresis gave a gradually weaker Wassermann reaction on the fluid until in a month it was wholly negative. In another month it was again strongly positive. We believe that many of the cases of paresis reported as having had a negative Wassermann reaction on the spinal fluid are based on the result of one examination. Every case diagnosed clinically as paresis or cerebro-spinal syphilis at Warren has had one or more positive reactions on the spinal fluid. In the three cases which showed a negative reaction at some time there was no relation between the reaction and the condition of the patient. There have been during the past two years six cases diagnosed as paresis in which a positive Wassermann reaction was never obtained on the blood, although as many as six tests were made on one occasion. However, it has been a quite common occurrence to obtain from one to three negative reactions on the blood followed by a series of positives, so that it is reasonable to suppose that if there had been opportunity to make more tests upon the persistently negative cases, a positive reaction would have been obtained.

It is not necessary to dilate on the value of routine autopsies. The history of a patient dying in a hospital is not complete unless there is a gross and microscopical report of examination of the viscera, brain and cord.

Many examples of the value of routine work in the laboratory could be mentioned, but one more will suffice.

We can safely say that in nearly every institution typhoid fever has made its appearance every year, and occasionally has become epidemic. Years ago epidemics were excusable, and to-day a sporadic case is excusable, but to-day an epidemic of typhoid fever in an institution is wholly inexcusable and is the result of neglect Blame it on carriers, infective vegetables, fruit, or what you will, the fact remains that an epidemic is the result of neglect and some one in authority is personally responsible.

It is now many years since typhoid immunization was first tried. It is no longer an experiment. Scores of papers giving statistics have appeared in the last ten years proving the value of immunization. All are familiar with the results in the army. Now if a whole army can be made free from typhoid fever by harmless inoculation, why can not an institution with a few thousand patients be made free by the same method? We believe that it can.

In May, 1912, a case of typhoid fever developed at the Warren Hospital. Twenty-five days afterward 998 patients and nurses had been immunized. But we made an error. Only patients under 50 years of age were immunized. Shortly afterward two new cases occurred in another building, one in a patient 65 and another in a patient 68 years of age. Immediately every patient over 50 years of age was immunized, and no further cases developed. Since that time over 2500 patients and nurses have been immunized, and in three years we have had one case of typhoid fever. and that ran such a mild course that the diagnosis was only established after repeated blood cultures had been made. We have typhoid all around us, but none in the hospital. Every six months the patients admitted during that interval are immunized. We have banished typhoid from the institution by taking advantage of simple routine laboratory work.

The problem of our syphilitics and the prevention of typhoid fever alone warrant the presence of a laboratory and a pathologist in every institution. The asylum has had its day. The day of the hospital is here. Diagnoses are no longer made by guess, but only after thorough study of the patient by means of every known method. We must have more laboratory work if we are going to advance. Without it, there is only one course open—regression.

REFERENCES.

1. Jour. Nerv. and Ment. Dis., Vol. 37, 1910.
2. *Ibid*, Vol. 41, 1914.

INSTITUTIONAL STASIS.*

By H. C. EYMAN, M. D.,
Superintendent Massillon State Hospital, Massillon, Ohio.

The word stasis comes from the Greek and means a standing or a stoppage, and how prone we are to come to a standstill in hospital matters! Institutionalism may mean decay, may mean ruts, and ruts, you know, are narrow tracks worn in the ground, especially hollow tracks.

> " A sleepy land where under the same wheel
> The same old rut would deepen year by year."

Why, even road supervisors will tack up signs instructing the drivers of automobiles to keep out of the ruts. Our hospital life, because of the necessary routine, is apt to become a " sleepy land," and sometimes it requires a severe jolt to shake us out of the ruts, awaken us into new life, infuse new vitality into our work, new hopes, new aspirations and new power into the wheel which for years has been deepening the hollow tracks. My criticism, if such it seems to be, is in the nature of constructive criticism, and with no intention to wound or offend. There are some ruts which are commendable, and for which we should all strive. Such beaten paths as uniform kindness, courtesy, integrity, loyalty and industry can never become narrow nor commonplace. There are, however, many phases of institution life which tend to narrowness, and the routine work of the officers, employees, and even the everyday life of the patients, is apt to result in a deep rut, out of which we can only be displaced by a violent jolt. These routine duties, performed daily, in almost exactly the same way, produce in the officer or employee an unconscious habit which surely brings in its wake hollow tracks. Could we but have the rays of the light of progress thrown in upon our work, I fear we should find in many places moss-covered and decaying spots. These rust spots are not confined to any one department, but, like the San Jose scale among our shrubbery, soon invade the whole institution. No department can be exempt from this inevitable trait of institutionalism. If we be not constantly filled with a profound sense of justice and duty, and if we do not have the energy and industry to discharge these duties, and are not constantly active in the pursuit of higher ideals in the advancement of all that pertains to institution life, the small as well as the larger things, we are apt to fall into institutional stasis. Industry and enthusiasm are touchstones which, when properly directed, will clean our institutions of this death-dealing scale and lift us out of these hollow tracks. I do not exempt the superintendent from this challenge. To fill the position of superintendent satisfactorily, to the patients, the relatives, the visitors, the Board of Administration and the powers that be, means a vast deal. By virtue of his position he is no ordinary man. He must combine professional skill and executive ability, and must show wisdom in the selection of his subordinates, as you all know how the imperfect working of a very obscure cog may materially interfere with the results expected from an otherwise perfect piece of machinery. He must know how to operate each of the various wheels in this hall of varied industries, else he cannot properly correct mistakes.

---

* Read at the seventy-first annual meeting of the American Medico-Psychological Association, Old Point Comfort, Va., May 11-14, 1915.

An eye taking in at a glance defects here or discords there. He must be filled with a divine discontent. Is it to be wondered at that the system and routine work, the everlasting grind necessary to the superintendency of this vast industry, should tend to one-sidedness, to narrowness, to hollow tracks, to stasis? His presence must fill the atmosphere, the stamp of his individuality and genius must be upon every piece and parcel. His energy must be limitless, his spirit must breathe through it all. The superintendent must force new energy into every branch and department of the institution, else for want of proper nourishment the branches wither and drop into decay, for there is no such thing as real stasis. We must either advance or recede. To do the things to-day as they were done yesterday, simply because they were done so yesterday, shows simply that the spirit of advancement is dead. Habit has stepped in and taken control, and retrogression has begun. He who fails to hear the call for progressive work must needs be crushed by the wheels of the juggernaut of scientific advancement. One of the amazing features of institutional life is the fact of the medical department being afflicted with hollow tracks, with stasis.

The most disheartening condition which can befall the management of an institution is to have assistant physicians who are just able to hang on, who do their various duties punctually may be, but in a perfunctory way, following lines of habit, content to be able to sign the pay roll monthly, and to escape the actual condemnation of their superior officers, not pushing forward to the very front of the column. They become contracted in their field of learning, cease to read medical literature, because from their view-point it is not really necessary; thus they not only become stunted specimens, but they actually bring the standard of the institution with which they are associated to a lower level. They are precocious carriers. While they may be able to just hang on, yet the force of their example may, and almost surely will, be the cause of deflection in some one who might otherwise be of some positive value. You know in such diseases, for instance, as diphtheria, there may be persons who, while not subjects for the disease themselves, yet carry it to others and thus pass the infection along. They are known as carriers. And then in horticulture, there are trees and shrubs of little value in themselves which are covered with scale and to which the scale does little damage, but they are liable to infect all shrubbery and trees of value all about them. These again are precocious carriers. The employees or officers acting as precocious carriers should receive the same treatment as the Carolina poplar in Ohio: dig them up by the roots. No arboretum can thrive if infected by scale. No institution can make progress with dead weights or precocious carriers attached thereto. Avoid this stasis. To steer clear of this rock the staff should constantly bear in mind the fact that to the personal and individual effort of each is the welfare of the patient due. It is manifestly impossible for the superintendent of a large institution to give much medical attention to each individual case. It is to the assistant physician he must look for succor in this direction, and if the physician is, to drop into modern slang, "a dead one" or afflicted with institutional stasis, then the poor unfortunate must suffer, and the reputation of the entire institution be challenged. To drop into ruts and live far beneath his privilege does not mean that the physician must be lazy and inattentive. He may be punctual, industrious, polite and careful, but if he be not all these and possess in addition thereto intelligent zeal for progressive work, and above all have sanctified gumption, he is simply filling in and becomes a succedanium, that is, " in the place of." To stand like a stone wall answers very well while the enemy is pounding against you, but to win battles in life we must not stand still, but ever forward and onward.

The most effectual treatment for persons mentally alienated is diversion and variety of interest. It will not suffice to visit your patient this morning, ask him the same questions, offer the same advice that you did yesterday and the day before, but you must strive to so invest your talent that you can offer something new each day. Even the forms of amusements must be studied and carefully advised, and the character of the employment needs your close attention. I have known patients to plod along year in and year out, doing the same work each day, with never a hope of improvement, but give these patients a complete change of environment, a new line of work, and their mouldy intellects commence to crack and strain, and oftentimes a steady and permanent improvement begins. You must jolt them out of the rut, as we in turn are jolted out. We are apt as medical men, after years of constant work amongst the insane, to make snap-shot diagnoses. A man is admitted, who expresses delusions of wealth, power and grandeur, whose lips tremble, who enunciates indistinctly, and immediately we say, " G. P.," " incurable," and dismiss him from our mind, and still a more careful examination may reveal distinct etiology for a vastly different pathology, and scientific treatment promptly applied may restore him to his family and make him a breadwinner again.

It is this unscientific standing still which handicaps us, and bridles our natural industry, and causes us to fall behind in the race for preeminent scientific work.

Of all the hollow tracks, however, I think the non-reading habit or rut is the most baneful. We may have formerly read much, and it may be also true that we have found much in print which was valueless, and we have therefore gradually and almost unconsciously formed a non-reading habit. So rapid is the advance along lines of medical thought that it has become an accepted fact that a standard work ten years old is almost worthless. What, then, can we say of the physician who has not carefully read a work treating of his specialty for ten years? Is it possible that he can be in the van?

And then another symptom of this institutional stasis is our smug self-sufficiency. We gradually neglect our medical societies, and after a while cease even to be affiliated with our local associations, and thus lose the necessary prod, which we would get if we rubbed more against our professional brothers. We become isolated, and to a large extent cut off from our friends. We are self-centered in our absorption, and may even lose faith in our profession and in ourselves.

I have always thought that a consulting staff of physicians from the outside would stir us up more than anything else. The mere rubbing against our confreres would wear away some of the rust spots. True we might have occasional differences of opinion, and we might have to submit to some ungracious and probably unnecessary criticism, but even that would be better than stagnation. The new ideas rampant in all branches of medicine or allied sciences make the non-reading doctor disappear quietly albeit quickly, and instead of standing still he will have a real third speed backward. Even old and tried ideas must needs be rehabilitated, and real effort is required to get on speaking terms with them. We are not to glory over past achievements nor be satisfied with battles won. These are really of little moment. Our battle cry must be, " What of the future ? " The obstacles in our path to be removed deserve our first consideration. 'Tis these that make us buckle down in our effort for supremacy. And how can we accomplish great things if we are content to follow the rotten track of indifference ? It has been said that it was to the dreamer we must look for the last word in science, in literature, in everything ; the man who would run a state hospital successfully must be the dreamer plus the dynamo, the dreamer in action, the dreamer waked up. The institution with a staff afflicted with stasis may glide along smoothly enough through the sleepy land, but no progress will be made and no results obtained. The dreamer with the dynamo, on the other hand, must look for frequent criticisms, must expect to be frequently misunderstood, aye, even may have some newspaper darts hurled at him, but with all this, he will have the contentment of knowing that if the darkness which almost envelops us is to be lifted he has been doing his part. I have in mind many ways in which this dangerous stasis may be attacked, but will content myself with having clanged the alarum.

THE THERAPEUTIC AND ECONOMIC VALUE OF DIVERSIONAL OCCUPATION.*

By BRITTON D. EVANS, M. D.,

Medical Director,

AND

FRANK M. MIKELS, M. D.,

Junior Assistant Physician, The New Jersey State Hospital at Morris Plains.

Temporal limitations will not permit a complete treatise of the Therapeutic and Economic Value of Diversional Occupation at the present time. The unlimited number of possibilities which arise in developing a systematic order of diversional occupation makes this project a stupendous task. The difficulty of obtaining from all the institutions in the country complete data relative to the important phases of this mode of treatment is another barrier in the way of a full treatise. Only a few of the important phases of this subject will be discussed in this paper.

The armamentarium of diversional occupation has a myriad of facilities which are valuable for therapeutic purposes. The form of work assigned should be consistent with therapeutic indications in each psychosis. The reactive effects should be carefully evaluated by a physician conversant with this régime of treatment. It should not be left to the haphazard judgment of untrained nurses and attendants. Before work is assigned, a careful study should be made of the peculiar complexes of each psychosis in order that the work prescribed will not militate against the improvement of the patient's mental condition. The chief aim is to obtain a total or at least a partial restoration of initiative to do work which will be beneficial to the health of the patient and a contribution to his resources and the wealth of the institution.

Any form of work which diverts the attention of the patient from his morbid ideas and false sensory perceptions may be regarded as a diversional occupation. In the treatment of certain psychoses, it is important to obliterate the painful recollection of sublimated experiences which were contrary to natural instincts. In order to do this, it is necessary to have a great diversity of intensely interesting activities which will attract and retain the attention of the patient. Any form of occupation which will arouse from his state of inertia an apathetic patient who does not ordinarily respond to external stimuli or show a tendency to react to internal processes, may be included in this category. Where there is unbridled and irrepressible psychomotor activity, any form of work which will give a patient a wholesome vent for his dynamic energy should be included in this class.

---

* Read by title before the seventy-first annual meeting of the American Medico-Psychological Association, Old Point Comfort, Va., May 11-14, 1915.

The important prerequisites for the establishment of indoor diversional occupation as a rational therapeutic procedure should comprise a building properly ventilated and illuminated, with interior furnishings that are harmonious in arrangement. All the modern safety devices for the prevention of accidents in the manipulation of the machinery should be installed. An emergency equipment for the treatment of any patient who might become suddenly ill or injured should be easily accessible. If there is available space, provision should be made for a retiring room where a patient becoming fatigued might lounge for a short time whenever a respite from his work is indicated. These requirements are no more than the ordinary ones which are found in any modern factory conforming to the most recent laws regulating industrial enterprises.

If it were possible to make a complete subdivision of all the kinds of labor and determine the therapeutic value of each increment in the production of a commodity, then we might have a materia medica of diversional occupation that would be an excellent basis upon which to establish a régime of treatment. This is hardly possible. For example, the unlimited activities that are involved in just one department, such as the arts and crafts, would make such a scheme Herculean in its task. Nevertheless, a modest attempt might be made to classify certain occupations according to the peculiar effect that they have upon the patients engaged in them, and this classification used as a criterion for the administration of ergotherapy.

A few of the occupations which have been efficacious in reactivating apathetic patients, the attaining and retaining of their attention, the arousing and holding of their interest, and the reformation of their behavior from destructive and vicious demeanor to one of orderly personal conduct, may be described as follows:

The manufacture of Colonial mats requires a very simple device in the line of equipment. It consists of a notched four-sided wooden frame which is adjustable to various dimensions. Any kind of yarn, preferably bright colored, can be used as working material. The technique in the manufacture of Colonial mats is very simple. It requires the repetition of the same kind of motor activity for a great number of times, and when a variation is made in this activity, the change is so slight that it does not severely tax the memory and judgment of the patient engaged in the work. The yarn is wound for a given number of times around two of the notches and then is changed to the next set of notches. After a series of these have been completed, the same operation is repeated in such a way that the strands of yarn intersect the preceding bundles. The next step in the process is the stitching of the bundles of the yarn at their points of intersection. In this part of the work, a great variety of colored silk or cotton yarn may be used with special advantage. The profusion of colors invariably attracts and holds the attention of the patient. He seems to get delight in the manipulation and sorting of these colored fabrics. Those who have initiative and active imaginations find an easy medium for expressing their ideas. Those who are stupid and apathetic find no difficulty in following the directions of their instructor.

This simple form of wark has been valuable in the reeducation of apathetic patients who have been diagnosed as cases of dementia præcox. It has been found that the technique is very easily acquired and retained. The retention of the new motor habit is done with a marked degree of accuracy. The variety of colors is used very advantageously to arouse their interest, and it is not unusual for a patient to show a predilection for a certain color scheme, and while permitted to follow out this scheme will work industriously. In the selection of colors, it has been noticed that red, or some shade of this color, is chosen the greatest number of times. The warm colors seem to attract the patients and delight them more than the cold or neutral tones.

Even though a patient is inaccessible and incapable of carrying on a conversation, he will respond to instructions in this simple form of yarn work if the instructor has sufficient ingenuity and patience to devise a way of demonstrating the technique of manipulating the material. Sometimes it is necessary to take hold of the fingers of an apathetic and inaccessible patient and work them through the motion a sufficient number of times to establish a new habit of activity. After this is accomplished, it is necessary to repeatedly correct him in order that he may obtain regular alignment and proportions in the adjustment of the material with which he is working before he can be permitted to go on independently.

If these educative methods bring about a new mechanism of motor activity, one that the patient has never before engaged in, and enables him to produce useful commodities, then this phase of diversional occupation might be rightly classed as a form of vocational education. If the patient becomes capable of producing utilities that have a market value, he will have an important asset in his favor for readjustment to social conditions should he recover sufficiently to be discharged from the hospital.

The art of rug weaving affords a great many opportunities for specialized activities. There are several distinct subdivisions of this work, and each one can be used with special advantage in treating the peculiar behavior of the various psychoses. The subdivisions of this work include the collecting, the sorting, the tearing, the sewing, the skeining, the dyeing, the reeling and the weaving of rags. The preparation of the loom for this work requires exceptional skill and accuracy. The warping of the beams and the tying in of each thread in the warp is very tedious work, and requires considerable experience. A brief analysis of the various subdivisions of rag carpet weaving has revealed the following possibilities of their therapeutic values:

In the treatment of middle grade imbeciles who have a tendency to be destructive and troublesome, it has been found that the tearing and sorting of the rags will hold their attention and keep them happily engaged in work. This division of the work can also be done by agitated and restless patients who have symptoms of the hebephrenic form of dementia præcox. The tearing and sorting of rags does not require much concentration of thought and is, therefore, very efficacious in treating the restless and agitated dementia præcox patient who is not able to keep quiet without some form of restraint or sedative medication. The sewing, skeining, dyeing and reeling of the rag strips can be done by patients afflicted with any of the other psychoses, provided their physical conditions will permit them to perform the work.

When the large hand shuttle or fly shuttle looms are used considerable energy is required to operate the reed frame. In addition to accurate judgment in the arrangement of the picks, especially when an artistic design is being woven into the rug, a keen inspection must be made of the lay of the warp in order that the finished product will not show evidence of irregularity in construction. It has been found that manic-depressive patients in the manic phase of this psychosis obtained exceptional delight in operating these looms and do their work with thoroughness and accuracy, and ofttimes they become so interested in the work that it is difficult to get them to discontinue when they are called to return to the dining rooms for their meals. In order to make this work attractive, a great variety of colors is used and the patients are permitted to work out their own color schemes.

A similar description and analysis can be made of the technical requirements of all the other industries, but this would be unnecessary for the purport of this paper. It may be apropos to enumerate a few of the more important industries that have recognized therapeutic value in the treatment of the patients: Chair caning, reed, rattan, willow and raffia basket making, cocoa mat weaving, Navajo mat and rug weaving, upholstery, rag carpet, scrim and towel weaving, stocking and sweater knitting, shoemaking, embroidery, macrame and Mexican drawn work, lace making, water color and oil painting, leather staining and tooling, clay modeling and the ceramic arts, cement work and the plastic arts, pyrography and stenciling, Indian bead work, paper rope and cardboard construction work, carpentry, cabinetmaking, Sloyd work, picture framing, brush and broom making, copper metal work, Venetian iron work, metal spinning and burnishing, printing, paper ruling and bookbinding, truck farming and laundry work. To this list might be added a department in domestic science with a modern equipment for the special treatment of women patients. All the industries that have been enumerated may be engaged in by the men and women patients where the symptoms of their psychoses indicate any form of occupation.

There are a great many unique methods which can be applied to make the work attractive to the patients. One valuable scheme is to establish a schedule of rewards for their work. There are a great many rewards which do not entail any cost which may be offered to the patients in consideration of their enthusiasm and diligence while engaged in the various occupations. These rewards will vary according to the traditions and the rules and regulations of the institution. The privilege of parole or freedom of the grounds seems to be one of the most popular requests made by patients, and in some cases the most difficult one to grant. This may be consistently granted in all cases where the mental condition of the patient will warrant such freedom. If this privilege is granted contingent with the regular attendance at the occupational classes it is is ofttimes the only reward necessary to satisfy the additional demands of the patients and is an admirable way of keeping them interested in their work. When this cannot be granted, other minor privileges may be offered, such as an opportunity to go on strolls, to attend the outdoor sports and to go in small groups and play outdoor games. A slight modification of the limitations placed upon the patient's social activity in the institution is often followed by renewed enthusiasm and more diligent application to his work.

In order to substantiate the claim that a given form of occupation has a definite therapeutic value, it is necessary to cite actual cases that have responded to this treatment without receiving any other in addition, such as hydrotherapy, electrotherapy or the regular hospital routine medication.

Patient, W. M. S., No. 3931, admitted March 15, 1894; age at time of admission 30; occupation, printer.

Mental Status: Onset of psychosis, one year, eleven months before admission. He had delusions of conspiracy and persecution. He was suspicious and constantly in a state of fear. He made homicidal threats directed against his persecutors. He was very sensitive and irritable. Previous to the onset of his psychosis, he was a very religious man but showed a complete change in his attitude toward religious subjects and ridiculed all sacred laws. Diagnosis—Dementia Praecox, Paranoid.

The hospital history of this patient is one of special interest. He had been in the institution 20 years previous to the opening of the Industrial building. During this time he gave frequent evidence of reacting to auditory hallucinations and entertained delusions of persecution, influence and slander. At times he became very vindictive and often threatened to injure the attendants or to take vengeance upon his persecutors. At one time he claimed that an attendant put insanity into his head by shaking keys at him and caused him to have a sensation in his brain which resembled " the shaking of shot in a pan." During the first few years of his residence in the hospital he was subject to outbursts of anger and wrath together with forceful motor impulses to injure any one who happened to be near him. During the last ten years he has been frequently irritable, pugnacious and violent, and at times his conversation teemed with profanity and vile invectives.

He was assigned to the printing department of the Industrial Building. During the first two months he was unable to engage in any of the work. He was reticent and showed a disposition to avoid associating with any of the other patients or cooperating with the instructor in charge of the print shop. He carried on a conversation in a monotone to himself and when interrogated he would not pay much attention. If a reply was elicited, it was usually irrelevant, and his conversation was characterized by a desultory and incoherent trend of ideas. After considerable encouragement, he was induced to distribute type. It required several days for him to recall the location of the letters in the type case. After he had mastered this part of the work, he seemed to have difficulty in differentiating the sizes and the faces of the type and succeeded in pieing one case of type before this defect in his workmanship was corrected.

In treating this patient, special care was taken to avoid criticising him lest he might become dejected as a result of his failure to comprehend the order of his work. As he became more adept in his work he was given more difficult tasks to perform. He was put on the composition of straight copy, which seemed to interest him more. He began to make rapid progress in his recall of automatisms or trade habit formations which were the component parts of his original skill as an expert compositor, a reputation which he had before the onset of his psychosis.

By putting at the disposal of this patient the necessary facilities for doing work under strictly hygienic conditions in company with congenial fellows, it was possible to enable him to make a practical application of those complex motor processes which are so essential in the development of adroitness as a compositor. If a gradual increase in a person's efficiency can be regarded as a form of improvement in treating a mental disorder, it might be said that this patient has nearly recovered because he is capable of turning out work with the same degree of accuracy and speed as that done by a regular qualified compositor. It is hoped that there will be recovery, based upon the normality of his other mental processes involving the exercise of judgment, initiative and the control of instinctive reactions that are necessary to protect the individual against adversities when in competition with other men of his class so that he may return to his former environment and useful citizenship. This patient is 50 years of age at the present time and it is unlikely that he will recover sufficiently to permit his discharge from the hospital, nevertheless the remarkable improvement in his behavior and the increase in his personal efficiency is a strong recommendation in favor of the therapeutic effect of diversional occupation. He takes more interest in his personal appearance and has a desire for a great many things that never gave him any concern before he engaged in this occupation. He is enthusiastic about his work, takes a great interest in each job that is assigned to him, and also evinces pride when a copy of his work is handed in with an O. K.

Patient, B. G., No. 8102, admitted December 22, 1906, age at time of admission 39, occupation, civil engineer.

Mental Status: Onset of psychosis, eight years before admission. A severe blow on the occiput when a youth was given as the alleged cause. He had delusions of persecution and political conspiracy. He threatened homicide and suicide. He lost his power of concentration of thought and had to discontinue his work. He wandered aimlessly from one place to another as directed by the peculiar content of his delusional system. He had the idea that he was being changed into a woman. Diagnosis—Dementia Praecox, Paranoid.

This patient has been in the hospital nine years. After admission he showed evidence of reacting to auditory and visual hallucinations. He was very delusional and claimed that he was undergoing a transversion of sex. For several years the sexual complex seemed to be the predominating content of his ideation. At times he was very irritable, arrogant and vindictive. He had frequent episodes of maniacal outbursts and became very pugnacious and destructive. While in this condition, his conversation was rampant with profanity.

When he was assigned to work in the arts and crafts department of the Industrial Building there was considerable doubt about the possibility of this patient adjusting himself properly to the requirements of this work. He was first tried in the class that was making Colonial mats, and at his own pleasure was permitted to inspect the work that was being done by the patients in the other departments. In the arts and crafts department there is a great variety of materials, fabrics and apparatus from which a patient may choose. He was treated in this respect precisely as the other patients. He was permitted to select any kind of work that appealed to his attention. The most difficult problem was easily solved as soon as a definite occupation was found to engage and hold his attention. He showed a predilection for water colors and was permitted to use them at his own discretion. He was given a large collection of stencils with brushes and a great variety of colors to work with, and was permitted to scheme his own designs on the material at hand, irrespective of the value or the amount he wasted. He was permitted to change from this task to another as his whims directed. After two weeks work in this irregular way, an aim was made to engage him in some definite line that would be of value to the institution. In a short time his talent, which is based upon a grotesque imagination, was directed to the production of artistic designs and patterns which are used in the manufacture of rugs and carpets, embroidered runners and scrim curtains.

In some respects the change in this patient's condition is similar to the previous one, in that diversional occupation enabled him to find a means whereby he could recall certain constructive technical registrations that had been made in his brain during the early years of his training while a student in an institute of technology. There has been a remarkable change in his behavior since he has been engaged in this work. He is more congenial and affable. He enjoys his work, and takes great pride in producing a design or copying a picture which meets with the approval of his instructor. This patient is 40 years of age at the present time, and even though a complete recovery to enable him to return to his former occupation as a civil engineer may not occur, nevertheless the facilities offered to him for engaging in this diversional occupation have gone a long way toward checking the process of his dementia and enabling him to make a more harmonious adjustment to the limitations of institutional environment. This patient has not been receiving any other form of medication or therapy in conjunction with diversional occupation, therefore it is not unreasonable to claim that he is being decidedly benefited by this method of treatment. A great number of examples similar to these might be cited.

There is no system so vicious as that which relegates a patient afflicted with a mental disease to the solitude of a custodial institution and totally disregards the residual earning capacity of that individual.

The economic value of diversional occupation is given a place of secondary importance from a medical point of view, but there are a great many fundamental principles involved in this problem and they must receive careful consideration. A thorough knowledge of the market values of the raw materials that are to be used in the construction of utilities is a very essential requisite. A comprehensive knowledge of the various devices and apparatus that are necessary for the development of an industrial department is of no less importance. The inauguration of a competent clerical system for calculating the exact cost of each increment in the process of production is necessary in order to guarantee a reliable tabulation of economic results. The same business acumen is required in developing a successful industrial department for diversional occupation as that required in the establishment of any mercantile enterprise having for its ultimate aim the production of commodities on a profit-paying basis.

The rendering of waste material into new hospital utilities offers the greatest range of activities, not only for the treatment of the patient but also for the economy of the institution. For example: The redemption of old brooms requires several well-defined activities and it has been found that patients who have destructive tendencies will work with a great degree of satisfaction and delight in tearing apart these unserviceable articles. They find vent for their destructive tendencies and thereby conserve their own clothing and the property of the institution.

There are instances where the prescription of a certain kind of work to allay the distressing symptoms of a psychosis will actually entail a waste of material, but there is a compensation for this loss if the prescription of work takes the place of administering drugs, and, ultimately, there is an actual profit if the patient eventually becomes a producer of articles which have a value greater than the loss of all the material that he has used. Sedatives and narcotics, even though valuable in emergency, are in themselves expensive measures for treatment, and also include the possibility of a habit formation which may result in a gradual increase in the cost of maintenance and treatment; on the other hand, a certain kind of occupation may cause a habit formation which will invariably result in an increase in the efficiency and the productive power of the patient. In summing up the salient facts relative to the therapeutic value of diversional occupation, the following conclusions hold true:

Diversional occupation is an efficacious method of treating mental diseases.

It retards the regressive process of dementia by renewing the patients' interest in coordinate activities and by reorganizing their habits of behavior. By reeducating patients who were highly skilled laborers before the onset of their psychoses, it is possible to partially or totally restore them to their former technical efficiency.

It provides a wholesome vent for dynamic energies in psychoses with accelerated psychomotor activity.

It diminishes the frequency of delusional deductions from hallucinations and illusions by absorbing the attention of the patient in attractive and pleasant pursuits.

It puts the patients in closer harmony with their surroundings and fellows, and gives them a personal interest in the welfare of the hospital and of the other patients.

It may provide a vocational training which will enable the patients to take up a more suitable and remunerative form of occupation after being discharged from the hospital and thereby prevent a recurrence of their psychoses.

The value of this method of treatment is in direct ratio to the efficiency of the physicians and instructors, and their personal interest in this form of therapy.

The economic value of diversional occupation depends upon:

The business acumen of the physician in charge of this method of therapy.

The integrity of the nurses and attendants in charge of each department and their conscientious endeavor to obtain the best results.

A thorough knowledge of the requisition system of the institution.

A careful analysis of the wants of each department, and the methods of disposing of unserviceable articles.

The elimination of archaic devices and the introduction of modern apparatus for work.

The rendering of all waste material into new hospital utilities.

The inauguration of modern efficiency methods of computing the cost of production.

When diversional occupation is introduced in a hospital as part of the therapeutic régime, it is important to give careful consideration to the following:

A systematic schedule of hours and work is essential for the constructive and progressive development of diversional occupation as a therapeutic measure.

The education of the illiterate and inefficient patient is just as important as the reeducation of those with psychoses which have obliterated their former capabilities.

The assignment of work should be varied frequently in accordance with the therapeutic indications.

Amusements and play should be introduced in conjunction with diversional occupation, but should not be made the chief aim of this method of treatment.

Instructors can be trained for this special work from the regular force of nurses and attendants when individuals temperamentally qualified can be found. They must be encouraged, given definite problems to work out and supplied with adequate facilities.

OBSERVATIONS ON THE VOICE IN TABES—A VOICE SIGN.*

Preliminary Report, with Case.

By WALTER B. SWIFT, M. D., Boston,
Instructor in Neuropathology, Tufts College Medical School; in charge Voice Clinic, Boston State Hospital, Psychopathic Department.

In order to freshen in your minds the subject-matter of the present paper, I wish to say a word about the different forms of paralysis and then a few words about tabes and the reasons for the symptoms that appear there. The purpose of this is to place clearly before you certain data that I wish to use when I come to the specific application of the subject in question.

There are four general types of paralysis: the flaccid, the spastic, the sensory, and the conduction. By flaccid paralysis is meant, as you know, a paralysis of the peripheral nerve, where all motor function is gone. In this paralysis we have motion impossible, we have lost reflexes, and if the lesion is located in that part of the peripheral nerve where the sensory and motor fibers are united in one sheath, then we have absolute loss of all sensation in addition. This type of paralysis occurs in such nerve cases as anterior poliomyelitis, neuritis, nerve incision or nerve crush.

By a spastic paralysis is meant the paralysis of the central motor neuron that passes from the great motor area in the cortex in front of the fissure of Rolando down to the anterior horn cells in the spinal cord. In this paralysis we have motion enhanced, because the inhibitory action exercised through that central motor neuron is removed and with it goes the removal of motor control. In this paralysis we have, as objective symptoms, increased reflexes, pathological reflexes, spasticity. This type of paralysis occurs in such nerve cases as hemiplegia, paraplegia, quadriplegia—in fact, in any destructive lesion of the pyramidal tracts.

By a sensory paralysis is meant a paralysis where the sensory side of the neurological mechanism is involved in part or wholly. In this paralysis we have no involvement of motion in itself except as it is a means of supplying control to the expression of motion. We do, however, have partial or wholly involved sensory anæsthesia. This type of paralysis occurs in such nerve cases as nerve crush, syringomyelia, neuritis, tabes dorsalis, and certain brain conditions.

---

* Read at the seventy-first annual meeting of the American Medico-Psychological Association, Old Point Comfort, Va., May 11-14, 1915.

By conduction paralysis is meant paralysis of the association fibers that occur in the brain between one area and another; for example, this is well illustrated in speech where a subcortical lesion has destroyed the fibers that pass from the hearing center in the temporal lobe to the area of motor speech in the inferior frontal convolution. We see, then, that here the sensory side of the whole nervous mechanism is intact; we see also that the motor mechanism is intact. It is the connecting link at the top, the key of the arch, so to speak, that is lacking. This type of paralysis occurs in subcortical lesions, and conduction aphasia is a good illustration.

I want to recall these different types of paralysis, so that in the case that is to be presented it will be quite clear that *one type* is present; and there can be absolutely no question that there is any other type there! This first step I must secure to make my presentation clear, for if there is any question left in your minds as to the presence of any other type of paralysis than the one that is supposed to be present, all that I have to say at once loses its foundation. I want you, therefore, to be clear in your understanding from the first that of all these types of paralysis the one that I am to present to you is not a flaccid paralysis, is not a spastic paralysis, and is not a conduction paralysis, but is solely and alone a sensory paralysis of a certain type.

This type of paralysis is that found in tabes dorsalis. The sensory paralysis here found is a partial involvement which strikes mostly those fibers that report the sensation of position from the extremities to the brain; this is, as you know, the so-called deep sensation.

It may very naturally be asked in a sensory paralysis of this nature, how is it that the motion of the legs becomes so involved when the motor side of the nervous mechanism is entirely intact. The reason for this is simply because the motion has lost its sensory control elements. In flaccid paralysis you have a loss of motion itself; in spastic paralysis, you have a loss of the control of the motion on the motor side—that is, a paralysis of motor inhibition. In the type of sensory paralysis under consideration, while motion and its control is intact, you have a loss of sensory-controlled motion, or in simple words, you are unable to move as you exactly intend to, because you cannot sense just where your leg is or direct it minutely. In still other words, we have here in tabes dorsalis, incoordinate movements which are caused by a lack of sense control!!

Upon this basis of sensory lack of motor control the Fraenkel exercises for ataxia of the arms and legs were founded and applied. The essence of these exercises is to so educate the eye in the observation of motion, and in the observation of muscular action, that the eye may supply more or less the motor control which is otherwise lacking through sensory involvement. Or, in less technical terms, we have the eye trained to supply loss of sensation of position which occurs in this disease.

Fraenkel published his discovery of the use of one sense to take the place of another sense—the eye in this case replacing deep sensation of position—in an extensive book that appeared in 1902. His exercises and methods have since been adopted as the routine and logical treatment for all cases with marked ataxia of the extremities. The exercises have received his name in the term Fraenkel Exercises, and the results of treatment are sometimes very marked. For example, a case that uses a cane and wobbles around very extensively, after two or three months of training is sometimes able to walk without a cane and show very little ataxia in his gait.

Fraenkel claims no cure for the lesion of tabes itself. The degenerated nerves are still there as marked as ever. Anyone can see that degenerated nerves cannot be restored; but in some cases his treatment of ataxia is so marked in its recovery that functionally it amounts almost to a cure. I think, also, that anyone would thus concede that the eye cannot completely replace the sensation of position that comes from legs and arms, and that the eye and concentration in people vary to some extent; and therefore, also upon this basis, results of drill must necessarily be variable and partial. These truths we should naturally expect also in more or less marked degree when it comes to a consideration of the speech side of locomotor ataxia.

Let us now consider briefly the type of the mechanism that we have in tabes with special reference to the externalization of that mechanism in the voice.

As will be seen from the above, we have as our neurological basis a partial sensory paralysis—paralysis of the position sense. That is, gross sensation is intact, as, for example, touch, and the feeling of hot and cold; and on the motor side, the peripheral motor neuron is intact as well as the sensory motor neuron; we have, then, nothing involved except the sensory report of position sense. From such a situation as this in the mouth, one should expect very interesting motor appearances—that is, in the sound of the voice and in attempts to speak, we would expect to find expressions of this lack of motor control of sensory origin; or in other words, inability to coordinate minute muscular movements in the production of sound. From the knowledge of sound production, we know that certain cavity formations make certain vowels and that certain exact and strained positions, followed mostly by air explosions, result in the sounds of the consonants. If we put these two things together, then, we would find as the type of voice in tabes, a voice where exact coordination was lacking. The production, therefore, would be one that approached vowels and consonants and yet sounded them inexactly. It is hard to find a term that is exclusively applicable here; such a voice might be called slovenly, indefinite, incomplete, indistinct, ataxic, disheveled. Perhaps the best word, after all, would be ataxic speech.

From what has already been said above, one would naturally be led to ask how the eye is to be utilized in a cure of this ataxia; and this is the problem at the point where I offer a new method of approach in treatment.

At this point I should like to present a case:

THE CASE.—Man, 53, American, Mail Clerk.

Complaint: Indistinct speech, pains and a stumbling gait.

First visit to Voice Clinic, Psychopathic Hospital, Boston, August, 1913.

P. I. Began in 1910 when he noticed something "wrong." Could not walk as fast as usual. Once thought he was walking fast, when a lady passed him at an ordinary gait, and he exclaimed, "What is the matter with me?" Again, he once fell on going down some steps. Says he stepped, but did not know where he was going. Since then careful about "getting near edge of things." He has tripped his toes; and sometimes toppled over without falling. For six months has had severe sudden pains in legs. Now better. Thinks he has had pains in form of a belt around his abdomen. Has occasionally vomited, often nauseated; better now. His walking is as if he had a "jag on," "I reel, and stagger." All these worse in the dark. Some bother buttoning coat.

No headaches, blindness, paralysis, bladder or rectum trouble; no waves in improvement, no uncontrollable laughter or other signs that would suggest insular sclerosis. No other complaints.

F. H. Father and mother both well at 77 and 75. Father always well. Mother considerable neuralgia, otherwise well. Had six children, all alive; always well, save one who had typhoid. Patient is third child. Miscarriages unknown. Maternal grandparent died of cancer; otherwise strong and sturdy. Father Irish and mother English.

P. H. Birth normal. As a child measles, pertussis, mumps; at 18 ear cut and left arm broken in fall from a team. Gonorrhea at 22; chancre at 27; treated internally. Stricture since the first venereal infection.

P. E. Well developed, well nourished man. Gait shows occasional stumble, unsteadiness, and insecurity, no marked incoordination.

Eyes: React to light, but both a bit sluggishly, right more so. React. to distance good. Slight nystagmus, faster and quicker on looking to right. No paralysis of ocular muscles.

Sensation: In face normal to touch and pain. Throat and tongue sensation normal. Arms and legs normal to touch and pain. No delayed sensation. "Smell normal."

Reflexes: Palatal and throat present and active. Wrist and triceps not obtained either side. Knee jerks and plantars active. Achilles equal.

Ataxia shows on approximating fingers, and finger-to-nose test. Slight but doubtful ataxia in legs, position sense good. Slight Romberg present. No atrophy. No paralysis. No intention tremor. Examination otherwise negative.

Vocal Examination: A marked intensity and rasping pervades all utterances. Some slight flexibility is present, but in general the voice is rough and monotonous. Says he cannot now whistle. "Used to whistle much, but cannot now make a noise; can't pucker my lips." On request to try and whistle, he makes sounds which are slow of formation and labored in execution. Can whistle Yankee Doodle after a fashion; but it is labored, and with such marked effort that it reminds one of trying to work with chilled hands. When he whistles slowly, he succeeds better. When he whistles fast it soon dies out so he cannot make any noise. At first notes used to change, "without my trying to make any change in them. I mean they went lower and higher— it seemed strange." This change he could hear and make it better with his ear by watching the notes and checking them up.

When very tired his voice is always worse, *i. e.*, after the day's work is done speech becomes markedly more laborious.

The sounds, letters, words, and sentences where he has the most trouble are those where some marked movement of the lips or tongue or throat is required—in a word—some painstaking adjustment of coordinating muscles. A few examples are the sounds put in italics thus:

*Eas*ed my *th*roat, pro*v*isions, *w*ell, *m*ake *n*o *n*oise, under*st*ood, Lenno*x* *S*t., *J*ournal. Again in some utterances he omits sounds altogether or substitutes others, as striture for stricture, and premont for Tremont. When he speaks fast his words "all go to pieces," and "it seems as if I couldn't get my lips to shape them." A set of words, as, for example, *make no noise,* in quick succession is very hard to execute and does not improve with such practice.

Through all the steps of these experiences I have been finally led to discover a system of exercises for ataxia of the voice; to the use of another sense to control the ataxia; and another method of doing coordinating exercises.

The method in brief consists (1) of eliciting the ear in place of the eye as Fraenkel did; (2) of demanding a measured tread to enunciation; and (3) in initiating what I call a listening check-up—repetition. Full details of this new series of exercises and their neurological setting is reserved for a later paper.

SUMMARY: A case of tabes with lesion located mostly in the bulb, showing a marked speech defect of incoordinate articulation important enough to interfere some with business, is treated by a series of vocal coordinating exercises and is relieved. This renders his occupation easier. He considers himself "one-third cured."

The Voice Sign: There is a distinct voice sign in tabes—an ataxic speech, which consists of a slovenly, indistinct enunciation on the laryngological side that shows partially in the vowels, but predominantly in the consonants. On the sensory side there is a partial involvement of the sense of position that is entirely to blame for the ataxia and slovenliness.

Treatment: The method of approach in treatment consists in the application of a new sense, the ear, on the otological side of the speech mechanism employed to check up and control the vocal expressions of ataxia, and thus to bring the slovenly speech through the employment of a trained hearing up to a more exact and clear enunciation—an ear function educated to check up and perfect a throat function.

THE TREATMENT OF PARESIS AND TABES DORSALIS BY SALVARSANIZED SERUM.*

(CONTINUED.)

By HENRY A. COTTON, A. M., M. D.,

Medical Director, New Jersey State Hospital, Trenton, N. J.;
Consulting Neurologist, Mercer Hospital, Trenton, N. J.

Below are given brief abstracts of the records of the cases of this group:

GROUP I.

CASE I.—*J. L. (Chart 2). Juvenile paresis, exaggerated knee jerks, demented type. Boy, age 17. Duration three years. Convulsion. Change of character, rapid progress downward. Marked improvement. Son of patient No. 10. Sixteen Swift-Ellis treatments. Result excellent. Living at home assisting father. Six Ogilvie treatments.*

A case of juvenile paresis in a boy 17 years old, with normal mental and physical development. Good education, learning stenography and typewriting at time of onset. Family history shows the fact that mother was also a paretic of tabetic type and is now undergoing similar treatment, but symptoms did not apear in mother until four years after onset in son.

The patient showed no evidence of luetic stigmata, and was a bright, capable boy. Two other children normal except that one boy stutters, for which he has been successfully treated.

Onset three years prior to treatment. In 1910 had a convulsion, nocturnal epileptiform, lasting for an hour, which he did not remember, and no further symptoms. Next convulsion two years later, April, 1912. After this convulsions became more frequent. Patient became more fretful, irritable, and was unable to continue in school. Developed many absurd ideas, especially regarding father, complained to police that father had beaten him. Marked memory disturbances. Defective orientation for time. School knowledge and calculating ability impaired. Had absolutely no insight. In consultation with Dr. C. A. Adams, of Trenton, the patient was first seen in April, 1912, and at that time was having frequent convulsions, was morose and indifferent, and much as described above. The cell count was 40, with negative globulin, and Wassermann of blood was 4+, spinal fluid 4+. A diagnosis of juvenile paresis was made. His condition gradually became worse, and six months later he was given several intra-muscular injections of salvarsan, but without result. He had frequent convulsions, always nocturnal, and at times every night. He was dull and stupid, quarrelsome, and soon would have had to have been committed to a hospital. Was seen again in consultation in March, 1913. It was decided to take him for consultation to Dr. Swift at the Rockefeller Institute, where it was decided that he should begin the Swift-Ellis treatment. Physically, at that time, he was poorly nourished, weighing 117 pounds. Pupils stiff to light and unequal. Defective taste, exaggerated knee jerks, marked speech defects, coupled with a congenital stutter, which had become worse. Somewhat unsteady gait, swaying in Romberg, and defective writing. He was untidy in his appearance, irritable and fault-finding, interfering with his father's work.

---

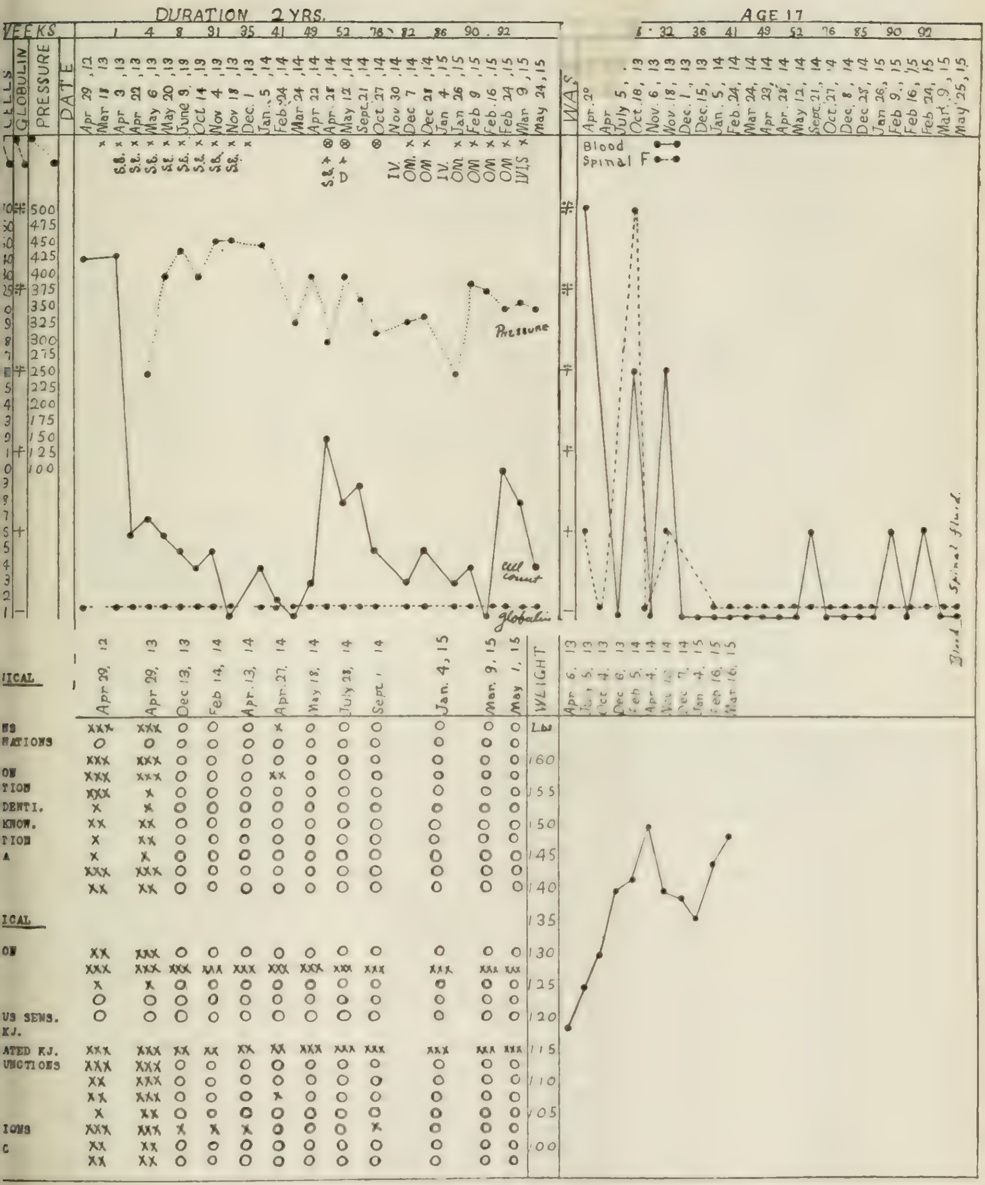
* Read in abstract at the seventieth annual meeting of the American Medico-Psychological Association, Baltimore, Md., May 26-29, 1914, and further enlarged.

Treatment was begun in March, 1913, and he began to improve immediately. The nocturnal convulsions lessened in number and severity. He became alert and active and the delusions about father disappeared. Active treatment was kept up every two weeks by the S.-E. method until December, 1913, at which time he had received ten treatments. His convlusions had about ceased, and his father was able to place him on a farm for the winter. He received no further treatment until April 14th, when he had a little setback and several convulsions. He had another treatment in May and none since October 14, when he was given his last one. All during the summer patient was employed on a farm devoted to the care of children during vacation, and he did very well, helping with the children and giving satisfaction. His weight increased from 117 to 150. He was robust, active, and showed good insight. It has never been necessary to commit him to a hospital, and he came regularly for his treatments. His memory was good, and he never forgot to come to the hospital when his treatment was due. He has had only two convulsions since February, 1914, one in April, another in September, and these were very light.

Treatment.—He received ten S.-E. treatments with full dose of neosalvarsan, .9 gm. The last three treatments at intervals of one and five months have been one-half doses (.45 gm.) in same manner. The reaction has always been marked, usually vomiting after intravenous injections, and slight discomfort after the intraspinous, but usually able to leave the hospital the day after the latter treatment. The proportion of serum to saline solution has varied from 12 cc. to 18 cc., to 40 cc. to 20 cc., but no appreciable change was noted in the reaction. The treatment was interrupted for six months, from June to December, 1913, as patient was apparently well, but it was thought wise to continue it, although no clinical symptoms were present to indicate the necessity. Since December, 1914, he has had six Ogilvie treatments.

Biological Reactions (see chart 2).—The cell count had not materially changed from April 19, 1912, to March 19, 1913, remaining at 40. After first treatment the cell count dropped to 6, then gradually dropped to 1. After a long period of no treatment, about five months, the cell count jumped to 12, but after three treatments fell to 5.

The globulin has been persistently negative, and this case is only one of two that such a condition has been found. The blood Wassermann dropped



Case 1. Chart 2. John Lrd. Juvenile G.P.

from 4 + to negative, then jumped to 2 +, varying again until it finally became negative. The fluid Wassermann began +, then became negative, and after seven months became 4 +. This was after seven months' cessation of treatment, when patient was apparently normal. This gradually dropped after treatments to negative and has remained negative since then. He has had seven treatments since December, 1913, and is to-day normal, able to help in his father's store, and the biological reactions are also normal. He has had no treatments since March 1915.

Colloidal Gold Reaction (negative after treatment).—1 3 2 1 0 0 0 0 0 0.

Discussion.—This case is unique in several ways. In the first place, it is probably the first case of paresis successfully treated in a state hospital, and undoubtedly the first case shown at a medical society as such, for he was presented by the writer at a meeting of the New York Neurological Society in November, 1913, as an example of the successful treatment by the Swift-Ellis method.

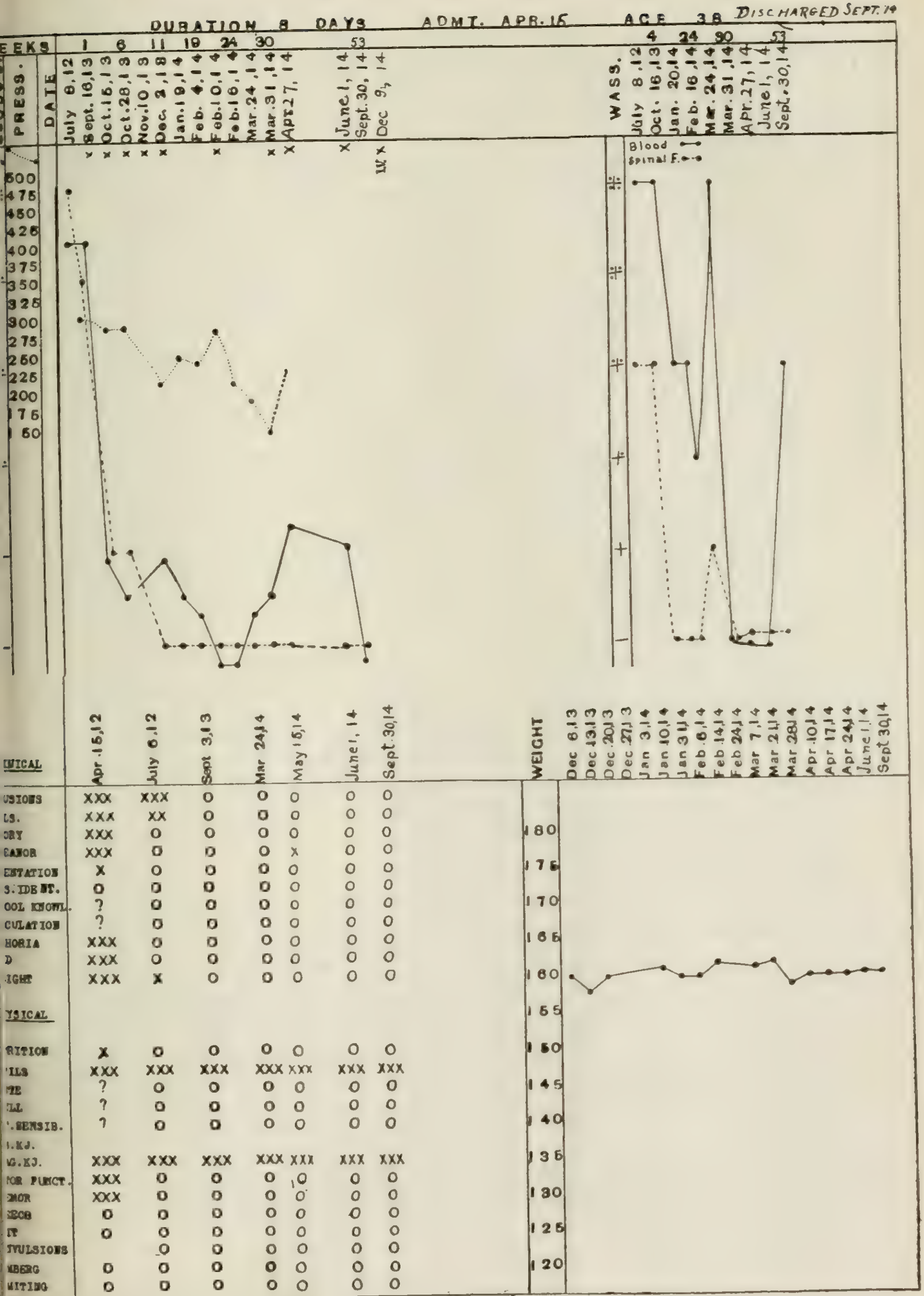
It was fortunate that such an outcome was obtained, for had it resulted in failure, probably this paper would not have been written and others would not have been stimulated to proceed with this method of treatment.

It is also unique from the fact that four years after his first symptoms his mother developed marked symptoms of tabo-paresis and is now undergoing similar treatment with gratifying results. The clinical exacerbations have always coincided with the unfavorable change in the biological reactions as seen in the chart, and through frequent examinations it has been possible to show this exacerbation and often forestall any relapse. With the exception of an occasional convulsion, nocturnal, and some instability following for a few days, there is no appreciable defects. But he is still under observation and it is possible that further treatment will be necessary. The only physical signs remaining are Argyle-Robertson pupils and exaggerated knee jerks.

CASE 2 (*see Chart 3*).—*E. L. Female, Widow, æt. 38. Husband died of paresis in 1911 in Germany. Maniacal-expansive type. Exaggerated knee jerks. Clinical remission for one year prior to treatment. Result, good. Keeping house for last eight months. Swift-Ellis treatment.*

Paresis in a German woman æt. 38, of negative family history. Husband died of paresis in Germany in 1911. Came to United States six months prior to admission, and knew no English when admitted to this hospital.

Onset.—Was sudden. A few weeks before admission queer actions and expansive ideas. Very extravagant, restless and excited, Dowie power of healing, hallucinations.



ENTAL (cut off)	Apr. 15,12	July 6,12	Sept 3,13	Mar 24,14	May 15,14	June 1, 14	Sept. 30,14
USIONS	XXX	XXX	O	O	O	O	O
LS.	XXX	XX	O	O	O	O	O
ORY	XXX	O	O	O	O	O	O
EASOR	XXX	O	O	O	x	O	O
ENTATION	X	O	O	O	O	O	O
S. IDE ST.	O	O	O	O	O	O	O
OOL KNOWL.	?	O	O	O	O	O	O
CULATION	?	O	O	O	O	O	O
HORIA	XXX	O	O	O	O	O	O
D	XXX	O	O	O	O	O	O
IGHT	XXX	X	O	O	O	O	O
YSICAL							
RITION	X	O	O	O	O	O	O
ILS	XXX	XXX	XXX	XXX	XXX	XXX	XXX
ZE	?	O	O	O	O	O	O
LL	?	O	O	O	O	O	O
. SENSIB.	?	O	O	O	O	O	O
. KJ.							
G. KJ.	XXX	XXX	XXX	XXX	XXX	XXX	XXX
OR FUNCT.	XXX	O	O	O	O	O	O
MOR	XXX	O	O	O	O	O	O
EOB	O	O	O	O	O	O	O
IT	O	O	O	O	O	O	O
NVULSIONS		O	O	O	O	O	O
MBERG	O	O	O	O	O	O	O
MITING	O	O	O	O	O	O	O

CASE 2. CHART 3. E. LAN. G. P.

Admitted April 5, 1912, in a state of maniacal excitement. Very destructive and violent. Psychomotor activity and flight of ideas. Marked exhilaration, expansive ideas and auditory hallucinations. Claimed to have a million marks. Orientation fair. School knowledge impossible to test. Absolutely no insight.

Physically.—Fair nutrition. Argyle Robertson pupils. Knee jerks and other reflexes exaggerated. Impaired motor functions. Marked tremors of hands, lips and tongue, otherwise no prominent physical symptoms.

Progress.—Patient remained in maniacal state for three months, then gradual improvement, but expansive delusions persisted for some months longer. In September 1913, over a year after admission, seemed quite well, had parole, and was enjoying a marked remission of mental symptoms. Had begun to learn English, which she now speaks fluently. Treatment was begun September, 1913, with good results. Has had eight treatments, last one in June, 1914. Since then she has been living at home, keeping house alone in a flat, and apparently in a normal condition. She visits the hospital occasionally for observation and examination.

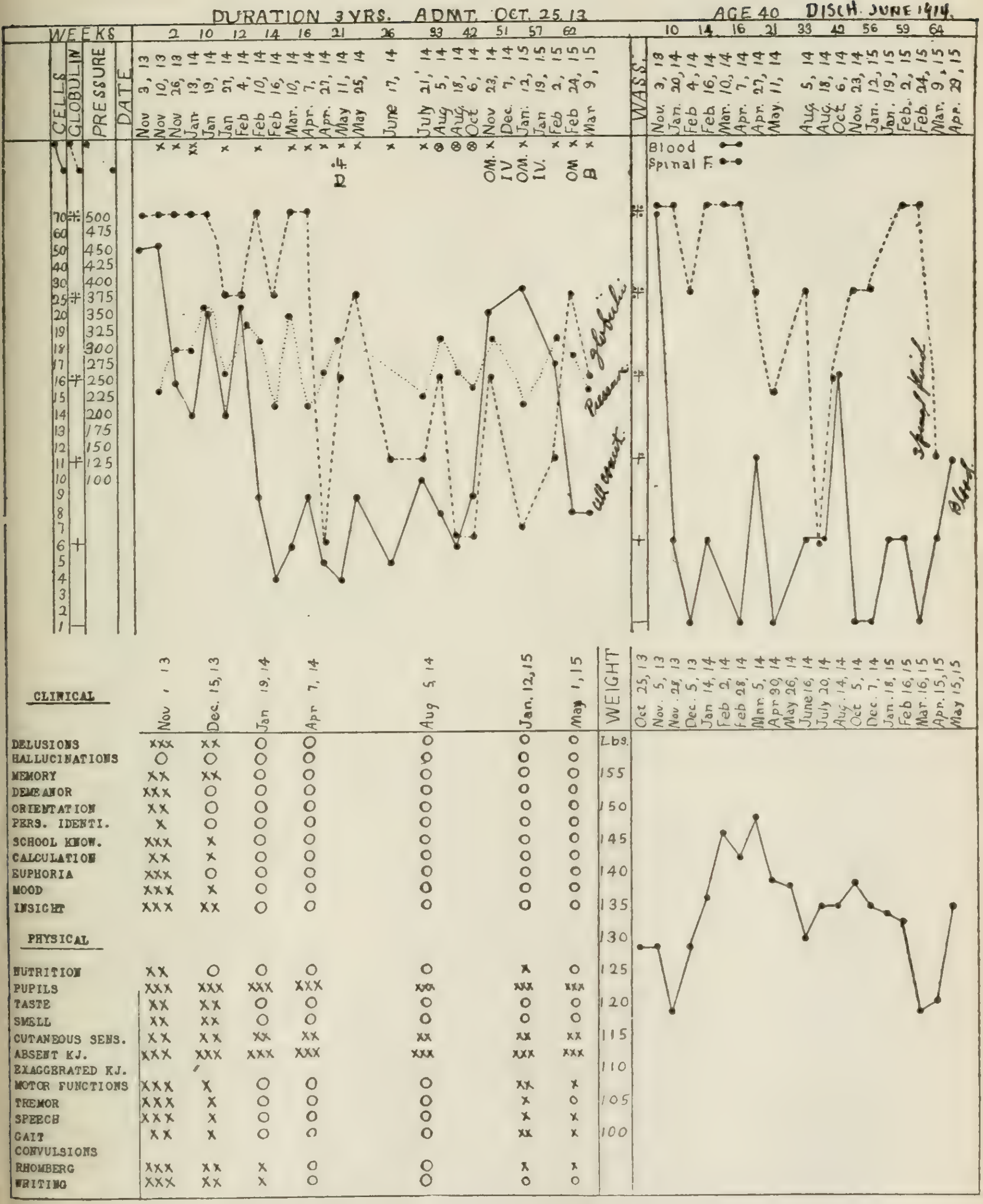
Biological Reactions.—On admission patient exhibited symptoms of manic-depressive insanity, and lumbar puncture was not performed until July; then 50 cells were found, 4 + globulin, 4 + blood Wassermann, and 2 + spinal fluid Wassermann. Fifteen months later, although she had had a remission for nearly a year, the lumbar puncture findings and Wassermann reactions were practically the same except that the globulin was only 3 + instead of 4 +.

After first treatment cell count dropped from 50 to 7 cells, globulin from 4 + to +, then to negative. Treatment was suspended from February 10 to March 31, and the cell count increased to 9, but after two treatments fell to 2. The Wassermann reaction in blood dropped from 4 + to +, then rose after this interval, from February 10 to March 31, to 4 +. After treatment it became negative, and since has risen again. The spinal fluid Wassermann has fallen from 2 + to negative. After second treatment has remained negative since.

Colloidal Gold Reaction.—5 5 5 5 4 4 3 2 1 1 0.

Discussion.—This case presented a typical manic reaction, and was first diagnosed manic-depressive insanity, manic phase, but after the excitement subsided in three months, the expansive delusions and physical signs were noted. A remarkable remission took place clinically, but biologically there was no change until after the treatment. The effect of the treatment was rapid and marked; only once did she show a tendency to relapse, in May, 1914, when she had dizzy spells and fell once or twice.

Since June, 1914, she has been apparently normal in every respect both clinically and biologically, except for an increased blood Wassermann.



Case 3. Chart 4. M. T. Tabetic. G. P.

The prognosis is very good, and further treatments to clear up the positive blood Wassermann are indicated.

This patient's husband died of paresis, which is worthy of mention. Another remarkable feature of the case is that she learned English after the arrest of the symptoms of paresis, another rare occurrence in this disease.

CASE 3.—*M. T. (see Chart 4). Female, age 40. Tabetic-expansive type. Three years' duration. Swift-Ellis treatment with good results, earning living for last nine months. Ogilvie treatment later. Prognosis good.*

Paresis in a woman of somewhat irregular life, poorly educated. Age, 40. Married, but no children. Miscarriages (?). Nothing unusual in family or personal history.

Onset.—About three years before admission marked change in character, neglect of herself and duties. Shooting pains in legs for some time. Admitted October 25, 1913. Mentally, patient was somewhat excited and euphoric, but at times depressed. Disoriented for time, place and persons. Defective memory and defective grasp upon surroundings. School knowledge and calculating ability defective and apparently no insight. Very marked expansive delusions.

Physically, she exhibited unequal and stiff pupils, impaired taste and smell. Disturbed cutaneous sensibilities and shooting pains in legs. Absent knee jerks and Achilles. Disturbed motor functions, marked speech defect and writing characteristics (see sample). Unsteady gait, swaying in Romberg position.

Progress.—Patient was treated within a month after admission. She cleared up gradually, and on January 14, three months after admission, was practically in a normal condition mentally, with good insight, but in rather poor physical condition. She still had great difficulty in walking and some pains. She continued to improve both mentally and physically, and on June 14 was able to leave the hospital after ten treatments (S.-E.). She has had nine since then and has been able to keep house for a family in the city, coming back when requested for treatment and observation. She has gained from 125 to 149 pounds in weight, and in June her weight fell off to 130, but has again increased to 135.

Treatment.—She has had the original S.-E. treatment until November 23, when she was started on the Ogilvie modification. She has always exhibited a marked reaction to treatment, usually marked nausea and vomiting after intravenous injection of neo-salvarsan and after the intraspinous injections had considerable pain for 24 hours, especially in her legs. She was very plucky and took the treatment, realizing perfectly well her trouble and the necessity for persistent treatment. The first six treatments, .9 gm. of neo-salvarsan, was given in 150 cc. normal salt solution. Three treatments were then given of .45 gm. of neo-salvarsan because she had such a pronounced reaction, but had little effect in reducing the pain. Another full dose was given, and then two half doses of neo-salvarsan. On October 5 she was given .2 gm. salvarsan, as we had no neo on hand, and the reaction was very severe. After the O. M. treatments she had no difficulty, and two hours later took the trolley home.

Biological Reaction.—The cell count dropped from 60 to 14, then rose to 25, dropping in small stages to 4 after the fifth treatment. The third treatment she was given a heterogenous serum which caused the cell count to rise to 25, which is a similar effect produced in other patients where this method was tried.

The globulin remained at 4 + until after seven treatments, except that on two tests it was 3 +; then it gradually dropped until it reached +, where it has remained. The Wassermann reaction in the fluid remained at 4 + until after seven treatments, then it broke to 2 + and finally +, then rose again. The blood Wassermann fell from 4 + to negative, remained negative until October, when it rose to 2 +. Further treatment is indicated to clear up the biological reactions. On March 9, 1915, was given bichloride treatment with very unfavorable results. General weakness and persistent vomiting for two weeks, gradually clearing up.

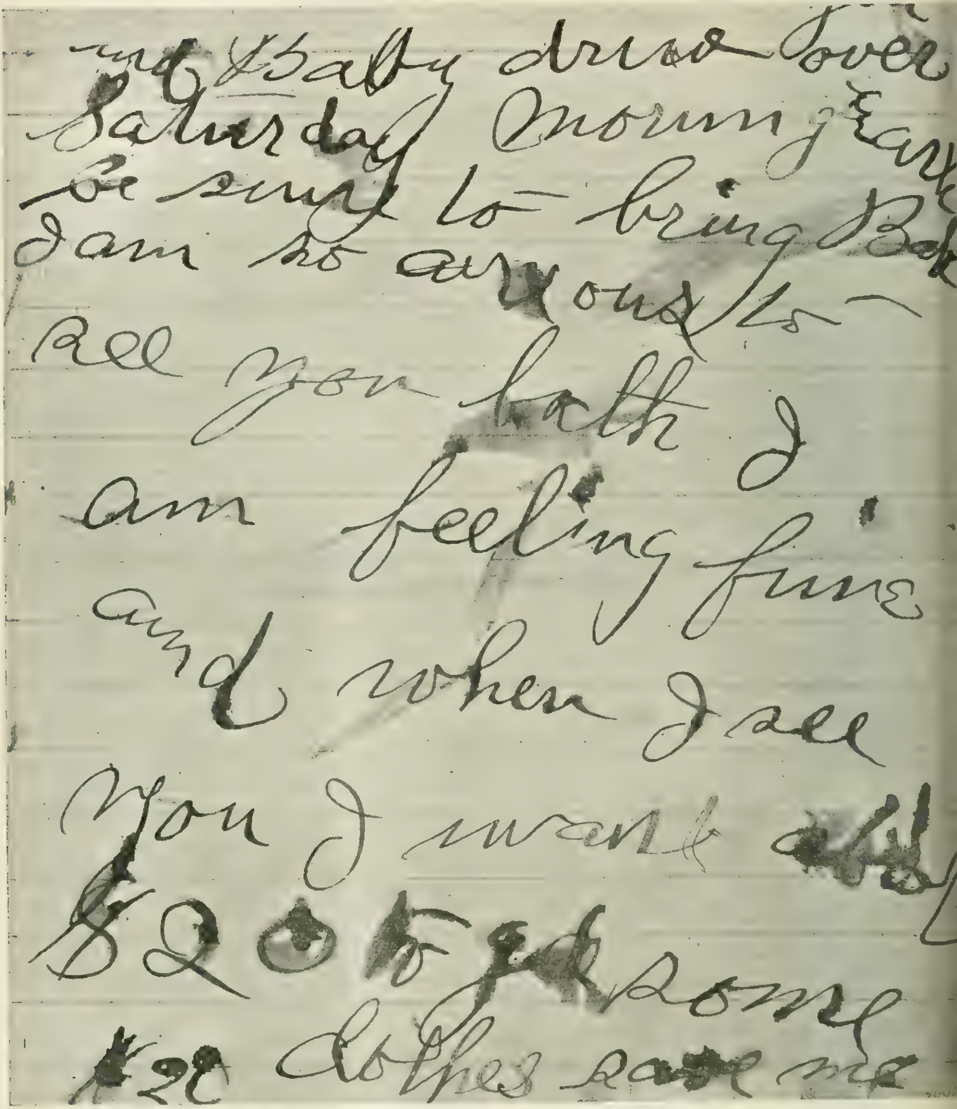
Discussion.—History of a marked tabetic-expansive type of at least three years' duration, with rapid improvement of the mental symptoms and a slower improvement of physical signs, and a consistent improvement in the biological reactions. In spite of the long duration this remission seems permament and the prognosis is extremely good. The case showed, as with other tabetic types, severe reaction to S.-E. treatment, but much less to the O. M. treatment.

The improvement in the writing is very striking (see sample), also the general physical appearance.

After the injection of bichloride serum patient had a severe physical relapse and lost 15 pounds in weight, but in another month regained 15 pounds. Mentally she appears quite normal, but the physical signs have not all disappeared and she has considerable difficulty in walking.

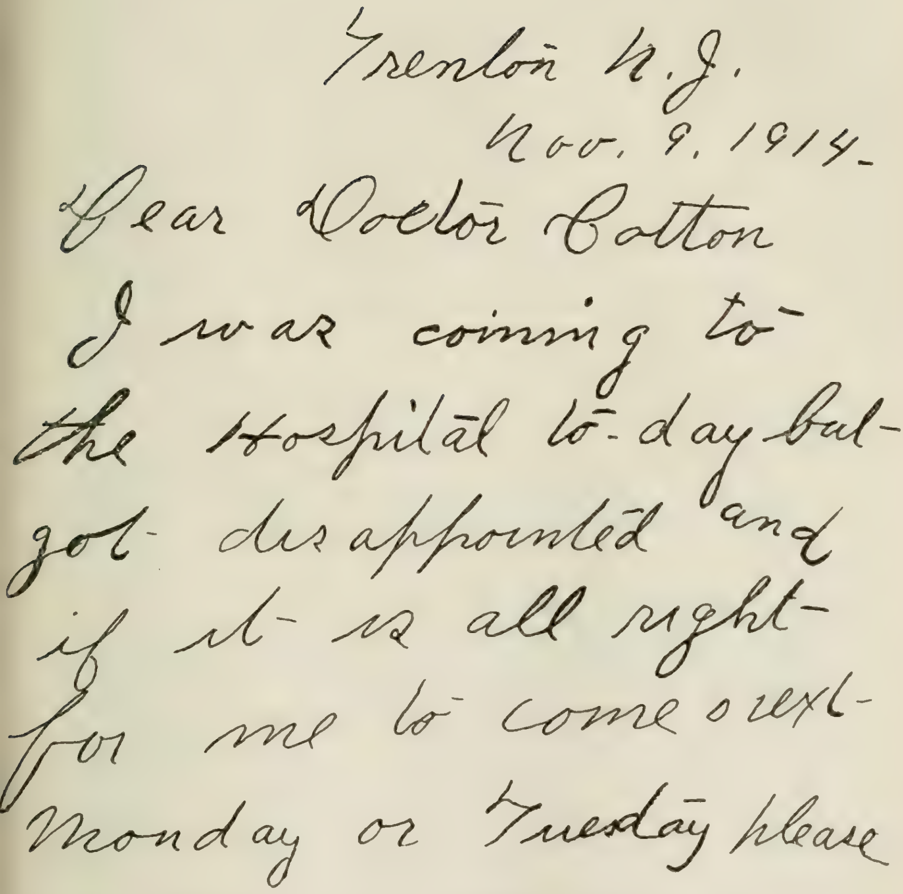
CASE 6.—*P. B. (see Chart 5). Married man, age 39. Syphilis at 32. Physical disturbance for six years. Gastric disturbance, incoordination. Mental symptoms of three months' duration. Expansive, memory defect. Argyll-Robertson pupils. Incoordination, speech defect, under weight. Biological reactions negative, except globulin positive. Rapid improvement under Swift-Ellis and Ogilvie modifications. Forty-five pounds gain. Working for the past year at home. Recovered.*

Paresis in a married man, age 39, with negative family and personal history. Occupation, clammer. Married at 25; has had two healthy children. Served in the army before and after marriage and contracted



me & Baby drive over
Saturday morning Ear
be sure to bring Ba
I am so anxious to
see you both I
am feeling fine
and when I see
you I want [illegible]
$20 to get some
$20 clothes save me

CASE 3. FIG. 1. SAMPLE OF WRITING, OCTOBER, 1913.



Trenton N.J.
Nov. 9. 1914.
Dear Doctor Cotton
I was coming to
the Hospital to-day but
got disappointed and
if it is all right
for me to come next
Monday or Tuesday please

CASE 3. FIG. 2. SAMPLE OF WRITING, NOVEMBER 9, 1914.

syphilis at 32 years of age. No treatment except cauterization. Four years ago neurasthenic symptoms with gastric disturbance. He was treated in various hospitals, worked for a few months at a time, but had to stop on account of physical condition. Persistent vomiting. Loss of use of legs. Finally went to Spring Lake Hospital and four months before admission developed mental symptoms. Rambling, incoherent talk, expansive, claimed to have had a lot of money stored away in home, that he was President of the United States, etc. Admitted to the New Jersey State Hospital January 12, 1914, in a weak, emaciated condition. Unable to walk; weight 100 pounds. Confused and incoherent.

Physical Status.—Weak, emaciated man. Unable to walk without support. Pupils unequal, contracted and irregular. No reaction to light, but react to accommodation. Knee jerks and other reflexes exaggerated.

Motor Functions.—General weakness of muscles. Gait ataxic. Marked incoordination. Swaying in Romberg position. Marked tremors of hands, and fingers, lips and tongue. Writing, characteristic scrawl, but no misspelling. Marked speech defect, mispronouncing and slurring test sentences.

Heart and Lungs.—Systolic mummur. Pulse 98. Blood pressure 95 mm. Radial arteries sclerotic. Extremities cyanotic and cold.

Cutaneous Sensibilities.—Pain sense dulled over extremities. Scar on glans penis.

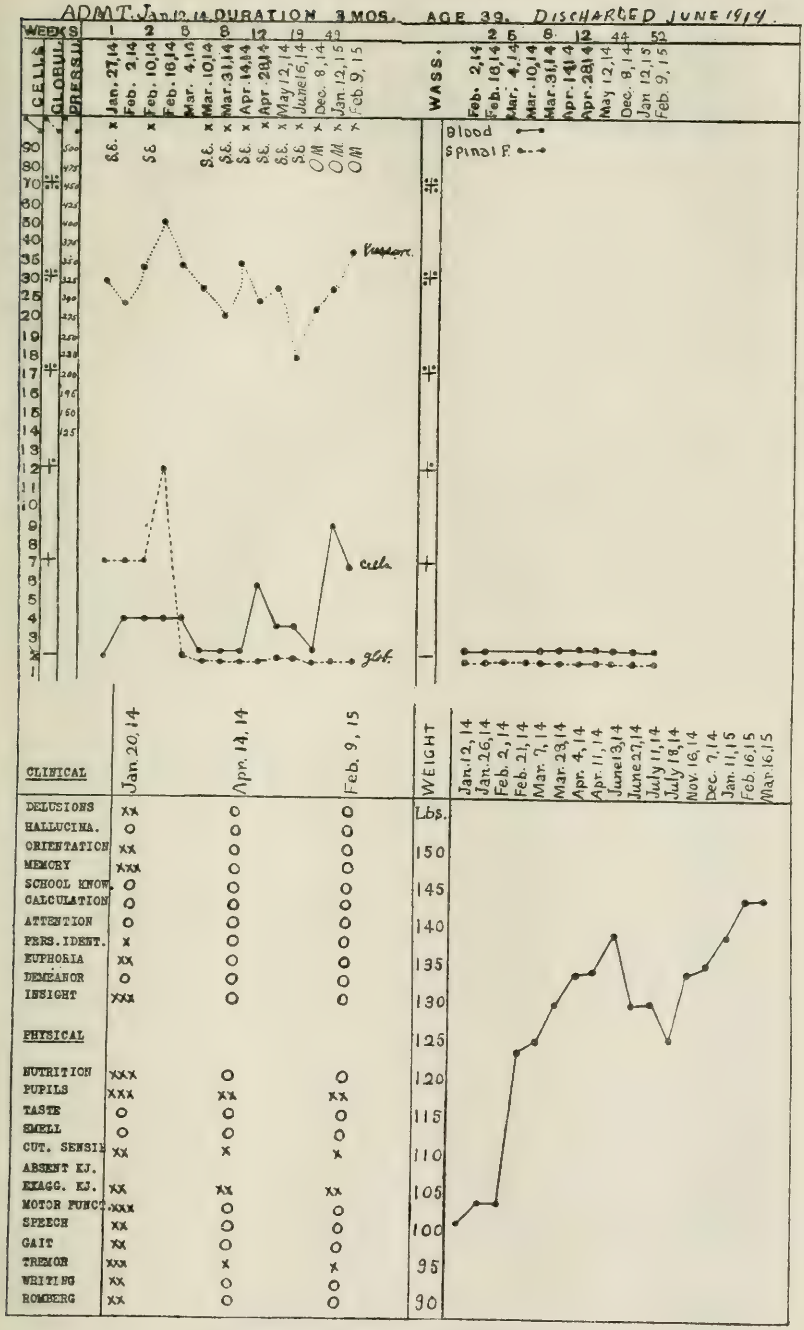
Physical condition was that of the well-advanced stage of paresis.

Mental Status.—Quiet and orderly demeanor. General feeling of well-being. Disoriented for time and partially oriented for place. Memory defective for recent and remote events. Personal identification good for early life, but defective for last few years. No insight. Delusions of grandeur present before admission, none since then.

Progress.—The patient was given four S.-E. treatments before much improvement was noted, but in three months he had gained 30 pounds in weight. Was able to walk about and practically all the physical signs disappeared except the stiff pupils and exaggerated knee jerks, and his stomach trouble from which he suffered for years rapidly disappeared.

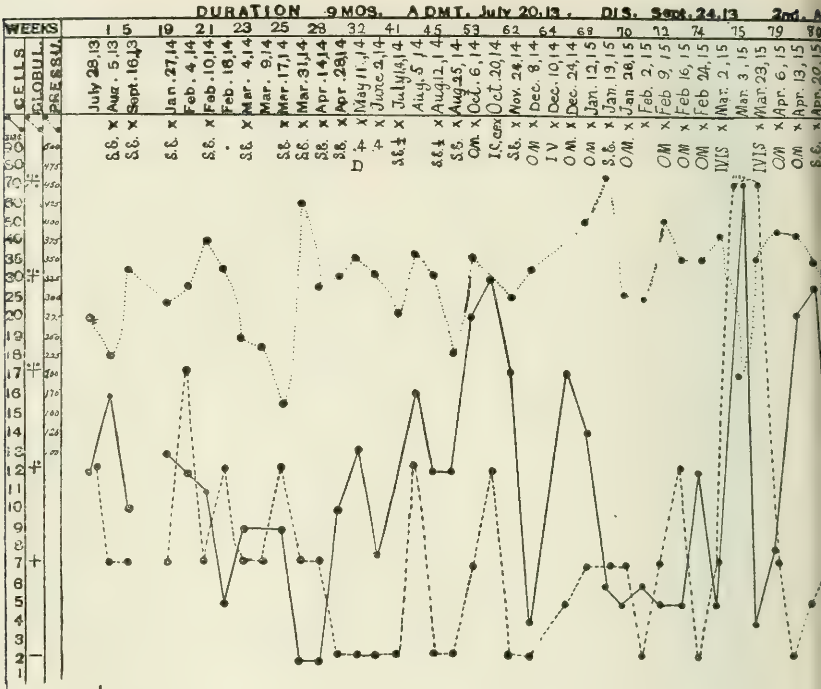
Mentally he showed rapid and marked improvement after the third treatment. He became well oriented, memory cleared up, and he developed perfect insight. He continued to improve both mentally and physically, and was given parole. He was allowed to go home on a visit in July, 1914, seven months after admission, and he had no treatments from June to December, 1914. Since then he has had three O. M. treatments. He reports when requested and has been earning a living for himself and family, though at times he complains a little of his stomach. Otherwise he is quite well. His last weight, taken in March, 1915, was 145 pounds, a gain of 45 pounds over his weight on admission.

Discussion.—Although the patient had all the physical signs of an advanced case of paresis, the serological findings were negative except for a weak positive globulin, and the mental symptoms



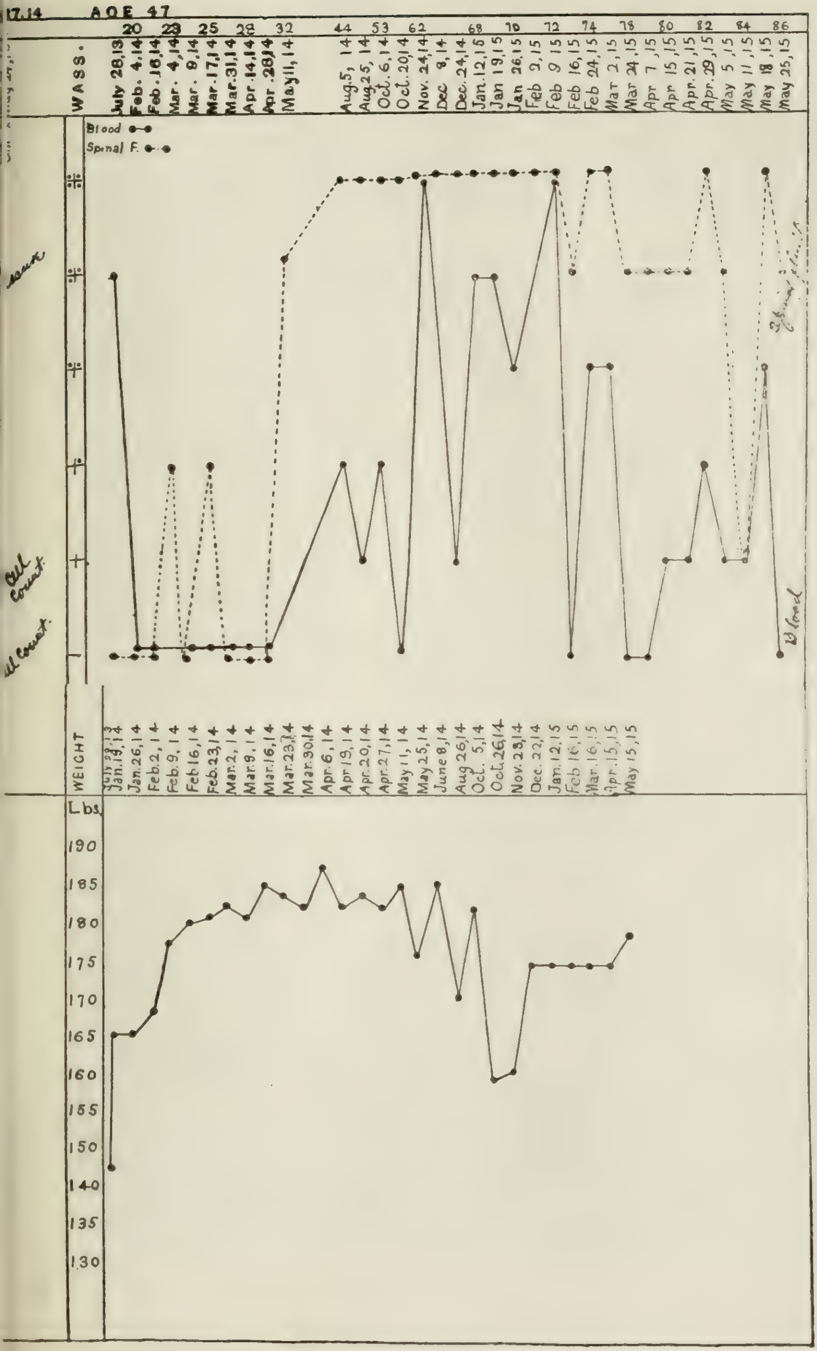
CLINICAL	Jan. 20, 14	Apr. 14, 14	Feb. 9, 15
DELUSIONS	XX	O	O
HALLUCINA.	O	O	O
ORIENTATION	XX	O	O
MEMORY	XXX	O	O
SCHOOL KNOW.	O	O	O
CALCULATION	O	O	O
ATTENTION	O	O	O
PERS. IDENT.	X	O	O
EUPHORIA	XX	O	O
DEMEANOR	O	O	O
INSIGHT	XXX	O	O
PHYSICAL			
NUTRITION	XXX	O	O
PUPILS	XXX	XX	XX
TASTE	O	O	O
SMELL	O	O	O
CUT. SENSIB.	XX	X	X
ABSENT KJ.			
EXAGG. KJ.	XX	XX	XX
MOTOR FUNCT.	XXX	O	O
SPEECH	XX	O	O
GAIT	XX	O	O
TREMOR	XXX	X	X
WRITING	XX	O	O
ROMBERG	XX	O	O

CASE 6. CHART 5. P. B. G. P.



CLINICAL	July 28,13	Sept 24,13	Jan. 27,14	Mar. 27,14	July 14,14	Oct 6,14	Mar 15,15
DELUSIONS	XXX	X	XXX	O	O	XXX	XXX
HALLUCINA.	O	O	O	O	O	O	O
MEMORY	XX	O	XX	O	O	O	O
ATTENTION	XXX	O	XXX	O	O	XX	XX
ORIENTATION	O	O	X	O	O	O	O
PERS. IDENT.	X	X	X	O	O	O	O
SCHOOL KNOW.	X	O	O	O	O	O	O
CALCULATION	X	X	X	O	O	O	O
EUPHORIA	XXX	X	XXX	O	O	XX	XX
INSIGHT	XXX	X	XXX	O	O	XX	XX
MOOD	XXX	X	XXX	O	O	XX	XX
PHYSICAL							
NUTRITION	XXX	X	XX	O	O	X	O
PUPILS	XXX	XXX	XXX	XXX	XXX	XXX	XXX
TASTE	XX	X	X	O	O	O	O
SMELL	XX	X	X	O	O	O	O
CUT. SENSIB.	O	O	O	O	O	O	O
ABSENT KJ.							
EXAG. KJ.	XX	XX	XX	XX	XX	XX	XX
MOTOR FUNCT.	XXX	XX	XX	O	O	O	O
TREMOR	XXX	XX	XX	X	X	X	X
SPEECH	XXX	X	XX	O	O	O	O
GAIT	X	O	O	O	O	O	O
CONVULSIONS	O	O	O	O	O	O	O
ROMBERG	X	X	X	O	O	O	O
WRITING	O	O	O	O	O	O	O

CASE 7.


17.14
AGE 47
20
23
25
28
32
44
53
62
68
70
72
74
78
80
82
84
86
WASS.
July 28,13
Feb. 4,14
Feb. 18,14
Mar. 4,14
Mar. 9,14
Mar. 17,14
Mar. 31,14
Apr. 14,14
Apr. 28,14
May 11,14
Aug. 5,14
Aug. 25,14
Oct. 6,14
Oct. 20,14
Nov. 24,14
Dec 8,14
Dec. 24,14
Jan. 12,15
Jan 19,15
Jan 26,15
Feb 2,15
Feb 9 15
Feb 16,15
Feb 24,15
Mar 2,15
Mar 24,15
Apr 7,15
Apr 15,15
Apr. 21,15
Apr. 29,15
May 5,15
May 11,15
May 18,15
May 25,15
Blood
Spinal F.
++++
+++
++
+
±
−
Blood
Spinal fluid
WEIGHT
July 28,13
Jan. 19,14
Jan. 26,14
Feb. 2,14
Feb. 9,14
Feb 16,14
Feb. 23,14
Mar. 2,14
Mar. 9,14
Mar. 16,14
Mar. 23,14
Mar. 30,14
Apr. 6,14
Apr. 19,14
Apr. 20,14
Apr. 27,14
May 11,14
May 25,14
June 8,14
Aug 26,14
Oct. 5,14
Oct. 26,14
Nov. 23,14
Dec. 22,14
Jan. 12,15
Feb 16,15
Mar. 16,15
Apr. 15,15
May 15,15
Lbs.
190
185
180
175
170
165
160
155
150
140
135
130

6. E. B.

were also characteristic—disorientation, memory defect, lack of insight, expansive ideas, etc. It is an atypical case when viewed from the standpoint of the negative Wassermann reaction in blood and spinal fluid, a cell count of four, but weak positive globulin. The globulin became negative, the cell count showed some increase up to nine at one time and then dropped to seven. From the history it would seem that it was of a mild type and of some four years' duration if we ascribe his neurasthenic condition with gastric disturbance as evidence of a physical condition due to syphilis and paresis. But it was becoming progressively worse in spite of the fact that he spent most of his time in hospitals under treatment for his stomach trouble. However, as soon as the Swift-Ellis treatment was given he began to improve rapidly and finally recovered both mentally and physically. A certain percentage of cases of paresis show persistent negative Wassermann reaction in blood and spinal fluid.

CASE 7.—*E. B. (see Chart 6). Male, married, age 47. Expansive type. Syphilis 16 years previous. Duration nine months. Rapid improvement under treatment, three months, and home after second treatment. Recurrence of symptoms. After nine treatments again goes home for five months. Recurrence of symptoms. Marked improvement, still under treatment weekly. Swift-Ellis and Ogilvie, also cerebral puncture. Good prognosis.*

Paresis in a married man, aged 47, with negative family history, nothing unusual in personal history. Syphilis at 31; chancre. No treatment. Married. Wife had one stillborn child and a second child, now 16 years old and healthy. Used alcohol moderately. A successful sign painter.

Onset.—Onset of mental symptoms in October, 1912. Nine months before admission he began inventing a non-refillable bottle and an adjustable wrench, which he patented. Two months later marked change in personality and disposition. Irritable and quick temper. Borrowed money from friends and was unable to repay. Gradually became worse, and in July, 1913, went to Washington to see the patent attorney. Telephoned wife about the large sums of money, automobiles, etc., he was going to get. While waiting for wife, tried to undress in station and go to bed; was arrested and taken to hospital, and then brought home and committed to the New Jersey State Hospital, July 20, 1913.

Physical Examination.—Showed a poorly nourished man who had lost weight, from 190 to 147 pounds. Defective taste and smell. Pupils contracted and stiff to light. Knee jerks exaggerated, unsteadiness in gait. Marked tremors of tongue and fingers. Slurring speech. Writing fair; some tremor.

Mental Status.—Considerable exhilaration, very talkative, with marked expansive ideas and ideas of self-importance. Disconnected and irrelevant stream of thought. Orientation good. Memory defective for dates and events of his life. Faulty retention. Personal identification defective. School knowledge defective. Calculation poor. Insight and judgment defective.

The diagnosis was easily made, as patient was a typical expansive paretic and the serological examination showed 12 cells per cc., and a moderately positive globulin reaction. Three + Wassermann reaction in blood, but negative at first in spinal fluid.

Progress.—He showed marked improvement after two treatments (S.-E.). He lost his expansive ideas and in three months was removed from the hospital by wife against advice of physicians, promising to return every two weeks for treatment. He took up some work, but did not return for treatment. He remained at home for four months, at which time he had to be returned, and all the former symptoms had returned. He had gained 20 pounds in weight while under treatment. When admitted the second time was expansive, exhilarated and irritable, wanted to talk over the telephone about large sums of money, automobiles, etc. Treatment was begun again, and after three injections (S.-E.) he again lost his expansive delusions and reacted in a normal manner to his surroundings, and was soon given parole. He showed remarkable insight, and after nine treatments he was allowed to go home, apparently in a normal condition, but was to report every two weeks for further treatment. He has gained 20 pounds more in weight (185 pounds). He reported twice and took two treatments, then for two months nothing was heard from him. At the end of that time he was returned to the hospital by his wife in a condition similar in all respects to that at his first admission. He was then given a cerebral puncture (Wardner), but resisted it so forcibly that this method had to be discontinued. From that time he was given weekly treatments, alternating the S.-E. with O. M. For some months he remained the same, except that he lost his expansive delusions, but was unreasonable, irritable, and showed absolutely no insight. He frequently refused to take any treatment and he was not forced. In the intervals at home he lost 25 pounds in weight. This gradually increased until at present (May, 1915) he weighs 175 pounds. He gradually improved in his mental condition, and has had parole for a month and has made no attempt to escape. He also assists in the dining-room. He now has good insight and the prognosis seems good. In March, 1915, following an intraspinous injection, he developed an irritative or mechanical meningitis, and the day following had 3000 cells per cc., with extreme pain, headache and some fever. He was not treated for 20 days, at which time a spinal fluid was again negative.

Treatments and Biological Reactions.—He has had 20 Swift-Ellis treatments and 11 Ogilvie, and one cerebral puncture. But twice the treatment was interrupted for a period of three months. He reacted severely to the first treatments, usually fainting after the intraspinous injections, and frequently asked to be anæsthetized, which was done. He showed remarkable improvement, but relapsed rapidly when treatment was discontinued. With the combined methods of Swift-Ellis and Ogilvie on alternate weeks he has made steady progress and is again in normal condition. By consulting the chart it will be seen that the globulin was only weakly positive and has frequently been negative, and at the time of his irritative meningitis it was 4 +. The cell count also shows a remarkable variation, with only 12 cells per cc. at first, with some increase after first interruption of treatment, the cell count gradually becoming normal. Then the cells began to increase, and during the next interval at home, four months, they had increased to 30 per cc. After treatment the cells again became normal until the irritative meningitis. when they increased to 3000, but in 20 days were normal again. It will be seen that the globulin also follows to some degree the cell count, and at first time the cells are 12 per cc. and globulin barely positive. The Wassermann reactions in this case are rather interesting. At first the blood reaction was 3 +, and the spinal fluid reaction negative. The former rapidly became negative, but after second interval at home it had become positive 1 +. Upon two occasions it has been 4 +, and for the last four months it has shown a tendency to become negative, and is now only barely plus. On the other hand, the spinal fluid Wassermann gradually became stronger with the treatment and a year later was a strong 4 +, and remained at this strength for six months, when there was a break, and in the last month it has dropped in strength from 4 + to barely plus.

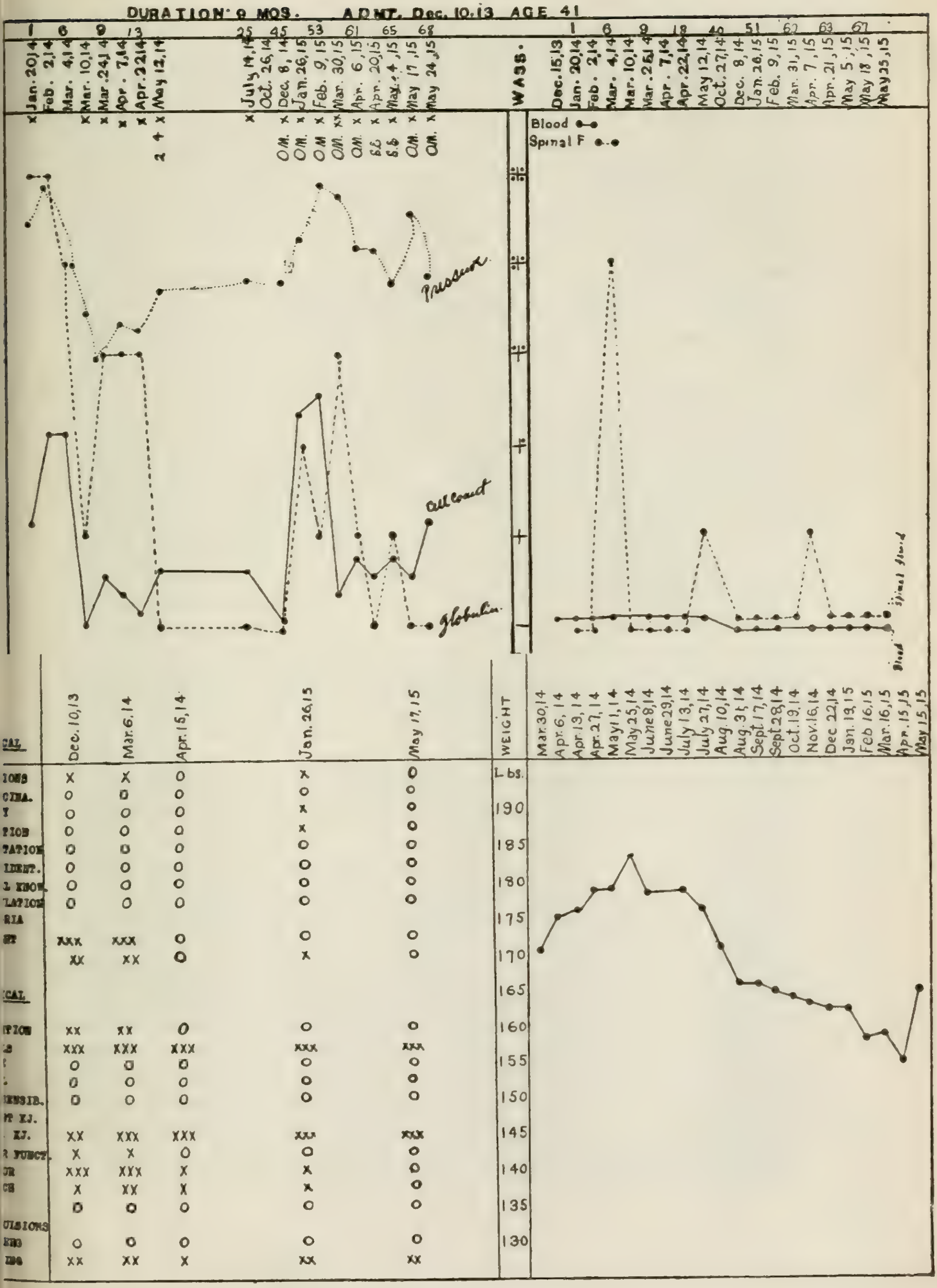
Colloidal Gold Reaction.—5 5 4 4 4 3 3 2 2 1 0.

Discussion.—The case has been considered a favorable one from the start, as the improvement following treatment was always rapid, but with a cessation of this treatment the symptoms returned. The change in the Wassermann reaction from negative to a 4+ is unusual and its remaining at this level is an indication for continued treatment. At first the treatment was only bi-weekly and sometimes longer, but for the last six months weekly treatments have been given (alternating S.-E. and O. M.) with good success and the prognosis is favorable.

CASE No. 9.—*C. W. (see Chart 7). Male, age 41; butcher. Neurasthenic type. Duration one year; unable to work. Various somatic delusions. Sister, tabes dorsalis case. Marked improvement after seven Swift-Ellis treatments; able to return home; treatments discontinued too soon. Prognosis good.*

Paresis of neurasthenic type in a married man, age 41, butcher by occupation, whose sister has locomotor ataxia. Chancre when 21, otherwise uneventful personal history.

Onset.—About one year before admission complained of being nervous, of pain in epigastrium, palpitation of heart, extreme exhaustion, unable to work for nine months. He was finally persuaded to come to the hospital



Case 9. Chart 7. C. W. G. P.

by his physician, Dr. Frederick Hughes, of Plainfield, N. J., who had diagnosed his case as paresis. He was admitted December 10, 1913, and exhibited marked symptoms of exhaustion, dizziness, and showed inability to concentrate; the latter was subjective. Somewhat emotional with somatic delusions and syphiliphobia. He had no insight into his condition and did not want to undergo treatment. He was somewhat depressed over his condition. Physically he was poorly nourished, with stiff pupils to light, exaggerated knee jerks, disturbed motor functions, marked tremor of hands, tongue and facial muscles. Slight speech defect and writing defect. Gait good.

Course.—At first the case was diagnosed neurasthenia, but paresis was suspected and first lumbar puncture showed only 8 cells, but a very strong globulin content with negative blood and spinal fluid. Wassermann reactions. The weight increased from 171 to 182 pounds, and he improved very much after the first four treatments. He had rather severe reactions and it was difficult to get him to continue treatment. He improved very much mentally, was able to have parole. He lost many of his neurasthenic symptoms and developed good insight. About May he would not undergo treatment, and from that time took only one more treatment. He began to lose weight steadily, complained again of his stomach troubles, and could not eat well. From May to September his weight decreased from 182 to 167 pounds, still he refused to be treated, and left the hospital of his own accord.

Treatment.—Patient was given seven S.-E. treatments and usually showed a rather severe reaction to same, especially after the first one. He dreaded the days, although he realized that he was being helped and was anxious to get well. On May 12, 1914, he was given one-half dose (.45 gm.) intravenously, and 40-20 serum intraspinously, but reacted so severely that this was discontinued. He was given four treatments of 20-10 serum and one 15-15; the latter seemed to suit him a little better, as he had less reaction. After a short visit at home he returned and treatment was again started December 8, 1914.

Biological Reactions.—On the first lumbar puncture the cell count was comparatively low, only 8, but suspicious, especially as the globulin was ++++. The Wassermann reaction in both blood and spinal fluid was negative. A second examination of spinal fluid a month later showed cell count of 13 and globulin ++++. On January 26, a month after admission, he was given the first intravenous injection of neo-salvarsan, with severe reaction, so that it was thought advisable to give the intravenous injection the next day. A month later the globulin was +++, cell count still 13, but the Wassermann in the spinal fluid gradually showed +++, and since then has been negative. The cell count dropped to 1, has risen as high as 4, and remained there until July. At present, May, 1915, all the biological reactions are negative.

Colloidal Gold Reaction.—4 5 4 3 2 1 0 0 0 0 0.

Discussion.—This case is a rather typical one of the neurasthenic variety, and without a lumbar puncture would have been so diagnosed, in spite of the fact he had given a frank account of syphilis. He had syphiliphobia and many subjective delusions, also severe gastric disturbance of a nervous character at the onset. His dread of the treatment, because of the rather pronounced reaction following the same, prevented us from giving him a thorough treatment. His marked improvement under treatment was evidence that a complete course would have benefited him very much. But he was allowed to have his own way, although he knew he would not get better unless he did submit to treatment. He continued to lose weight and between May, 1914, and April, 1915, he lost 30 pounds. He was somewhat depressed during this time. He would sit in his room alone and complained of stomach and head. He had no appetite. Between December and August, he was given six Ogilvie treatments and two Swift-Ellis, but with little clinical improvement. But gradually he seemed to be better and he gained 10 pounds in weight from April, 1915, to May, 1915, and at present is more cheerful and anxious for treatment. He has good insight into his condition and the prognosis is good.

CASE 10.—*L. L. (see Chart 8). Female, age 50. Tabetic demented type. Mother of case 1. Duration one year. Marked tabetic complex. Rapid improvement, S.-E. and O. M. treatments, severe reactions. Result excellent.*

Tabo-paresis in a woman age 50, whose son is a juvenile case (case 1). Husband denies lues, and Wassermann reaction negative. One daughter healthy and one son normal except for congenital stuttering, which has been successfully treated.

Onset.—Personal history uneventful up to a year ago. Became indifferent to surroundings, irritable and unsociable, would sit by herself, make no attempt to attend to her household duties. Refused to go out and did not care for visitors. Soon showed marked impairment of gait and speech. Could not walk at last without assistance. Marked tabetic complexes present. Mentally she was indifferent, laughed in a silly manner, disoriented for time and persons, and had marked memory defects. She had no insight into her condition. Her school knowledge was defective. Patient showed a mild degree of deterioration, which was progressing rapidly.

Physically.—Good state of nutrition, weight 135 pounds. Enlarged axillary and epitrochlea glands. Patient complained of some dizziness, vertigo and inability to walk in the dark. Some impairment of taste and smell. Pupils unequal; right small and stiff to light, left larger and reacts to light. Cutaneous sensibilities somewhat impaired and dull for touch and pain. Heat and cold senses normal. No disturbance of stereognostic sense. Clubbed fingers. Knee jerks and Achilles absent, also forearm and biceps reflexes. No plantar reflex. Motor functions impaired. Tremor of hands and tongue, swaying in Romberg position. Muscular power diminished. Marked incoordination, especially of lower extremities. Gait unsteady and characteristic of tabes. Speech slightly affected. Writing poor.

Treatment.—Patient has received eight S.-E. treatments, only one-half dose of neo-salvarsan intravenously, at three-week intervals. The proportion of the serum has varied from 15-15 to 25-12½. No appreciable difference in the reaction was noted.

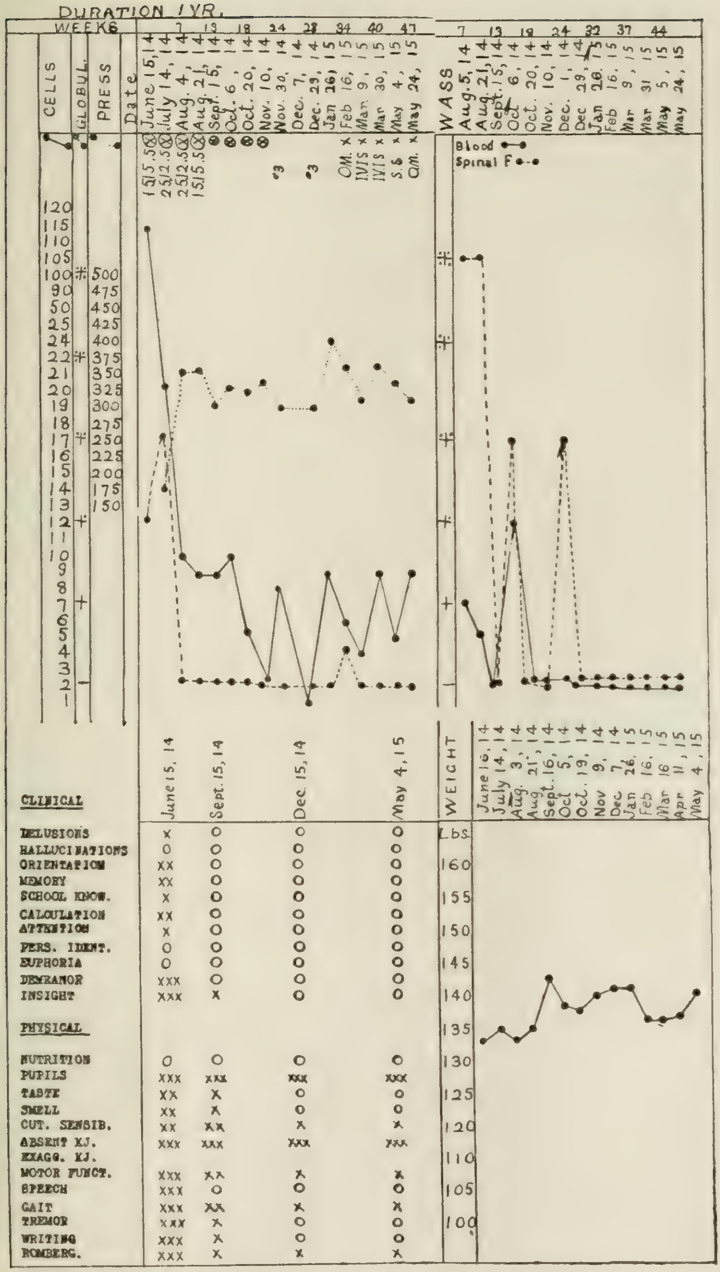
She has rapidly improved under treatment, both mentally and physically, which was noticed at about the fifth treatment. She became brighter mentally, took a lively interest in household affairs and in her family. She lost the apathetic, indifferent demeanor; wanted to go out and see her friends. Memory became better and she developed insight. Physically, she gained 10 pounds in weight and soon showed marked improvement when walking. She lost the tremors, speech and writing defects. The most marked improvement has been in her gait. She is able to walk about the city with the help of a cane, when previous to treatment she could not walk at all.

Patient always showed marked reaction to treatment (S.-E), would vomit after intravenous injections, and have considerable pain in lower extremities, beginning 12 hours after treatment and lasting 24 hours. She was only given half doses of neo-salvarsan, which, in her case, has been quite as effective as full doses in other cases, and the pain has been less.

Biological Reaction.—The cell count was quite high, 115 before treatment, but fell to 21 after first injection, then to 10, finally after two treatments to 3. The globulin content rose from 1 + to 2 + after first treatment, then dropped to negative, where it has remained for four months. The spinal fluid Wassermann was + + + + at first and has dropped to negative and going to + +, but negative since October. The Wassermann reaction in the blood was +, then 1 +, finally negative. It has increased and decreased with the spinal fluid Wassermann, but not so high.

Colloidal Gold Reaction.—0 2 2 0 0 0 0 0 0 0 0.

Discussion.—This case presents several important features. First she developed tabo-paresis three years after her son (case 1) had developed juvenile paresis. The tabetic symptoms apparently preceded the mental symptoms, but the latter developed rapidly after starting. She has had only one-half doses of neo-salvarsan with just as good results as full doses in other cases.



CLINICAL	June 15, 14	Sept. 15, 14	Dec 15, 14	May 4, 15
DELUSIONS	X	O	O	O
HALLUCINATIONS	O	O	O	O
ORIENTATION	XX	O	O	O
MEMORY	XX	O	O	O
SCHOOL KNOW.	X	O	O	O
CALCULATION	XX	O	O	O
ATTENTION	X	O	O	O
PERS. IDENT.	O	O	O	O
EUPHORIA	O	O	O	O
DEMEANOR	XXX	O	O	O
INSIGHT	XXX	X	O	O
PHYSICAL				
NUTRITION	O	O	O	O
PUPILS	XXX	XXX	XXX	XXX
TASTE	XX	X	O	O
SMELL	XX	X	O	O
CUT. SENSIB.	XX	XX	X	X
ABSENT KJ.	XXX	XXX	XXX	XXX
EXAGG. KJ.				
MOTOR FUNCT.	XXX	XX	X	X
SPEECH	XXX	O	O	O
GAIT	XXX	XX	X	X
TREMOR	XXX	X	O	O
WRITING	XXX	X	O	O
ROMBERG.	XXX	X	X	X

CASE 10. CHART 8. TABO PARESIS. FEMALE. AGE 50.

Marked reaction followed treatments at first, but for some months has had no reaction or pain following treatment. The prognosis in this case is good, unless the tendency to relapse shown in taboparetics is present in this case also.

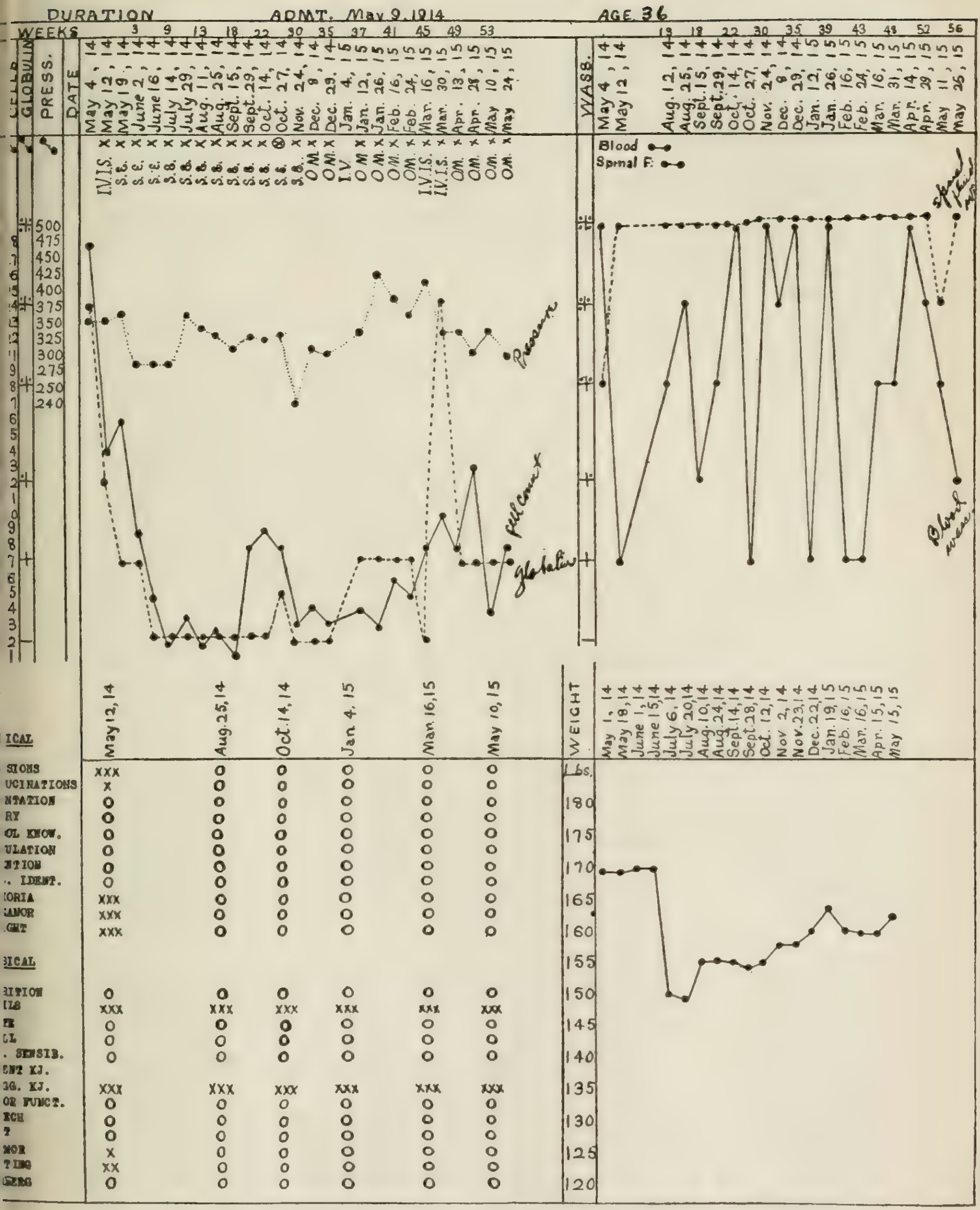
CASE 11.—*N. K. (see Chart 9). Expansive type, age 36. Optic atrophy. Four years' duration. College graduate, athlete. Marked remission. Swift-Ellis and Ogilvie methods. Prognosis good. Still under treatment.*

Psychosis in a young single man, age 36, with negative family history. Patient had good education. Prominent athlete in college, from which he graduated in 1900. Admits gonorrhea at this period, but denies syphilis. Congenial and social disposition. Moderate user of alcohol. He held several positions of importance. Nothing abnormal in personal history.

Onset of Present Symptoms.—In 1910 patient gradually lost vision. He was operated upon for supposed pituitary trouble, with some improvement in one eye. Since that time has had no permanent occupation. Mental symptoms began in January, 1910. He became exhilarated and unduly optimistic and extravagant, and showed lack of self-control and conduct; disorder in regard to women. Wanted to marry an acquaintance without her consent, also wanted to be married in the White House, and receive an appointment as consul to Bermuda. He became unmanageable and was committed to this hospital May 9, 1914. On admission was somewhat excited, exhilarated and expansive, wanted to buy automobiles and exhibited many other extravagant delusions. Orientation was good, also grasp upon surroundings. Memory for remote and recent events good. No deterioration demonstrable, but marked defect of insight and judgment. Protested against hospital confinement, and became violent when interfered with.

Physical Examination.—Well developed and muscular man with recent fracture of right leg. Marked disturbance of vision. Opthalmoscopic examination shows severe optic atrophy and choroiditis. Movements, right, normal; left, paralysis of inferior rectus and superior oblique muscles. Pupils unequal and very sluggish to light. Knee jerks markedly exaggerated. No speech defect, but some tremors of tips of fingers. No swaying in Romberg. Special senses (other than eyes) normal. Cutaneous sensibilities and muscular power normal.

When admitted lumbar puncture showed 19 cells per cc. and 4 + globulin. Spinal fluid pressure 360 and + + Wassermann in fluid. The blood Wassermann was + + + +. Treatment given May 12 and subsequent treatment every two weeks, with full doses of neo-salvarsan. After the second treatment he became ecstatic, had many visions, thought he was Christ, that he was coming to rule the world, etc. This state lasted a day, and then he became calm, and since then his symptoms rapidly subsided, and since August, 1914, he has been in practically a normal condition. He has parole, goes about the city and gets about remarkably well, considering his poor vision. He has developed insight and shows no defect of judgment. Blames his ecstatic condition on the treatment.



CASE 11. CHART 9. N. K. T. G. P.

The cell count dropped gradually, and after four treatments was only 2. On September 29 after nine treatments the cell count increased to 9 with slight increase in globulin content. The fluid Wassermann went from + + to + + + + and has remained there, while blood Wassermann has, after some variation, dropped to +. The pressure of spinal fluid has shown but little variation. The weight has fallen off from 170 to 155.

He has had 25 treatments, nine of which of late have been Ogilvie methods, the others Swift-Ellis. The spinal fluid Wassermann, which has been persistently 4 + for a year, has at last broken and it looks as if it would become weaker.

Colloidal Gold Reaction.—5 5 5 5 5 4 4 3 3 2 0.

The only abnormal condition at present is the 4 + Wassermann, as the cell count is within normal limits. The prognosis is good for complete remission of mental symptoms, but physically no improvement can be expected, especially the optic atrophy, as it is of too long a duration.

CASE 12.—*C. S. (see Chart 10). Voluntary commitment, male, age 57. Expansive type. Knee jerks exaggerated. Duration two years. Result, marked remission, living at home, returns regularly for treatment.*

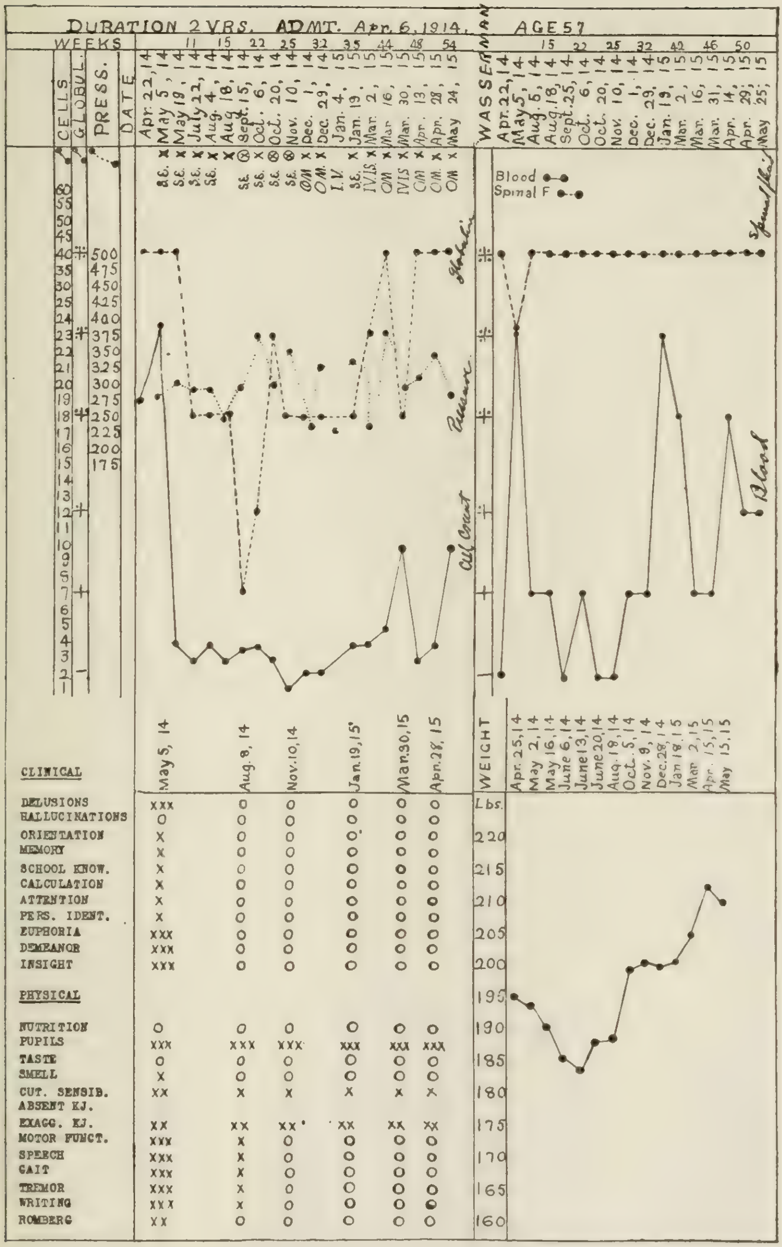
Psychosis in a married man, age 57. Policeman. Negative family history. Personal history negative. Denies syphilis. No children.

Onset.—Two years ago. Inefficient in work, gradually progressive. Memory defect, poor judgment. Resigned from police force and had lived at home. Suddenly, seven weeks before admission, became violent, threatened his wife, expansive delusions, extravagant. Another violent outbreak a week before admission. Upon advice came to hospital voluntarily, although said nothing was the matter with him except that he was nervous. After two days did not want to remain, and wife took him home against advice. Four days later returned, as wife could not control him. Wanted his wife committed, as he claimed she was insane. Orientation good, but confused identity of those about him. Memory for remote events good, but poor for recent events. Some confusion; thought he came here four weeks ago. Marked expansive delusions, with exhilaration and psycho-motor restlessness. Absolutely no insight into his condition, except that he feels nervous at times. Lack of judgment. Claimed the nurse had poisoned him.

Physical Examination.—General feeling of well-being. Taste and smell normal. Hearing defective. Pupils equal, central, regular, but contracted, sluggish reaction to light. Cutaneous sensibilities dull over lower extremities. Knee jerks brisk, unsteady gait, swaying in Romberg position. Marked speech defect. Tremor of lips and facial muscles and fingers. Writing defective, elision of letters.

Spinal fluid, 19 cells per cc., 4 + globulin, Wassermann 4 +. Blood Wassermann negative, then 3 +. Weight 195 pounds.

Patient has had 17 treatments. The cell count dropped after first treatment from 24 to 3 and since then has remained at 3, until now it is 10. The globulin reaction dropped from 4 + to 2 + after third treatment, then



CLINICAL	May 5, 14	Aug. 8, 14	Nov. 10, 14	Jan. 19, 15	Mar. 30, 15	Apr. 28, 15
DELUSIONS	xxx	0	0	0	0	0
HALLUCINATIONS	0	0	0	0	0	0
ORIENTATION	x	0	0	0	0	0
MEMORY	x	0	0	0	0	0
SCHOOL KNOW.	x	0	0	0	0	0
CALCULATION	x	0	0	0	0	0
ATTENTION	x	0	0	0	0	0
PERS. IDENT.	x	0	0	0	0	0
EUPHORIA	xxx	0	0	0	0	0
DEMEANOR	xxx	0	0	0	0	0
INSIGHT	xxx	0	0	0	0	0
PHYSICAL						
NUTRITION	0	0	0	0	0	0
PUPILS	xxx	xxx	xxx	xxx	xxx	xxx
TASTE	0	0	0	0	0	0
SMELL	x	0	0	0	0	0
CUT. SENSIB.	xx	x	x	x	x	x
ABSENT KJ.						
EXAGG. KJ.	xx	xx	xx	xx	xx	xx
MOTOR FUNCT.	xxx	x	0	0	0	0
SPEECH	xxx	x	0	0	0	0
GAIT	xxx	x	0	0	0	0
TREMOR	xxx	x	0	0	0	0
WRITING	xxx	x	0	0	0	0
ROMBERG	xx	0	0	0	0	0

CASE 12. CHART 10. C. SCHK.

to +. The spinal fluid Wassermann remains at 4 +. The blood Wassermann rose to 3 +, then gradually dropped to negative. He has had five full doses of neo-salvarsan after the first, which was one-half dose. The last three treatments has had one-half doses, and on October 20 had one-half dose salvarsan, and the globulin has fallen to 2 +. The amount of serum given has varied from 30-15 to 15-15. Last dose given was 19-19. The amount of spinal fluid withdrawn has been from 50 cc. to 30 cc. The Wassermann and globulin reaction are still abnormal and more treatment is indicated. He has had five O. M. treatments lately.

Colloidal Gold Reaction.—5 5 5 4 3 3 1 1 1 0 0.

Progress of Case.—Patient continued expansive for some weeks, dissatisfied and irritable. He escaped from the hospital on May 25, after two treatments, and his wife returned him to the hospital. He escaped again on July 5, and was returned July 20. After his third treatment he had improved markedly in his mental condition so that his wife took him home, but returned him in time for next treatment. There was a month's break in this treatment in August, and the globulin jumped from + to 3 +, but has since dropped to normal. He is now living at home and appears in a normal mental condition; returns alone for treatment. He has given up his expansive delusions, and has good insight into his condition. Prognosis good.

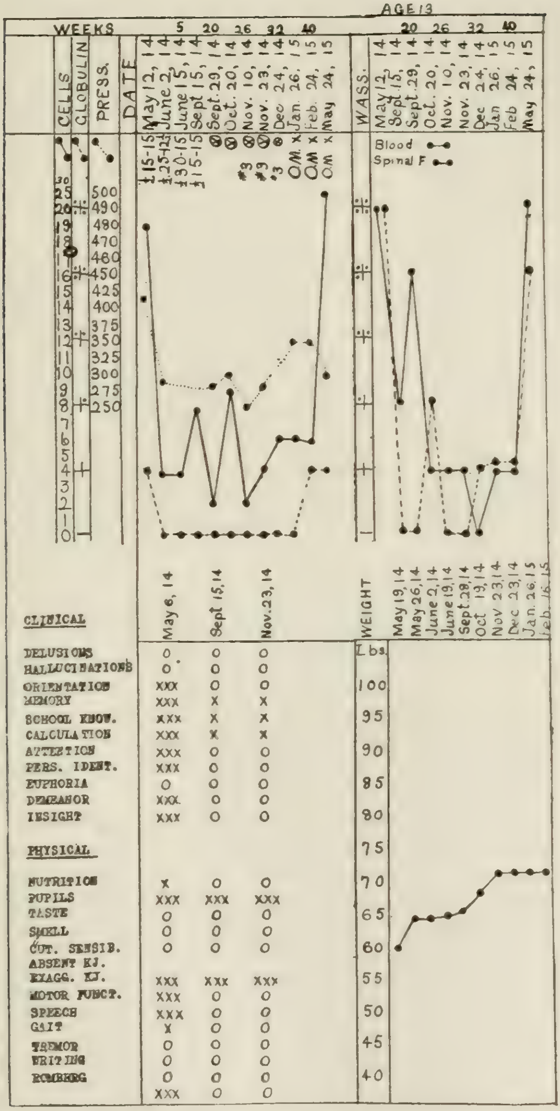
CASE 13.—*J. K. (see Chart 11). Juvenile paresis. Male, æt. 13. Spastic type. Sudden onset (two weeks). Dull, stupid. Shock with weakness of lower limbs. Rapid improvement with Swift-Ellis method. Now practically normal, Binet test.*

Juvenile paresis in a boy 13 years of age, of Hungarian parentage. Mother healthy, but has negative and stiff pupils (lumbar puncture showed fluid negative, and negative Wassermann reaction).

Patient is one of eight children, all younger than patient. Two other children died in infancy. The living children have had lumbar punctures and Wassermann tests made, but all tests were negative. The patient has attended school for six years and made fair progress. Mother thinks he was normal except that he might have been a little backward. Always promoted, however.

The onset of the mental symptoms was sudden—two weeks before admission. He had some kind of shock which seemed to leave him weak in the legs. He became dull, stupid, listless, refused to talk, and had to be taken from school. He would not play or take any interest in himself or home. Had to be dressed and undressed, and was untidy in his habits. He would not speak or answer questions. He was referred to the writer by Dr. Charles I. Silk, of Perth Amboy, who stated that he had suffered from congenital syphilis and had been under treatment all his life. Had three salvarsan injections, two intramuscular, and one intravenous. The present condition developed two weeks ago.

His mother brought him to the hospital and entered him as a voluntary patient. On admission was dull and stupid. Sat in chair, looking down,



CASE 13. CHART 11. J. K. JUVENILE TYPE. ONSET 2 WEEKS.

and took no interest in his surroundings. When questioned or spoken to by mother he cried. He did not resist going to the ward, but cried after he got there. No mental status could be taken, as he would not talk, although he knew English well. He also refused to answer any questions.

Physically he was underdeveloped, had dull, vacant expression, marked Hutchinson's teeth. Pupils equal, but do not react to light. No speech defect, and, aside from exaggerated knee jerks, no other symptoms of importance. The diagnosis was made upon meager physical signs—positive lumbar puncture and strongly positive Wassermann reaction in both fluid and blood.

Treatment.—He was given seven S.-E. treatments, using one-half dose of neo-salvarsan intravenously, and 3 O. M. treatment. He rapidly improved, and after the third treatment began to answer questions. He always cried before and during the treatments, but would not resist. For last two treatments, however, he has not cried and understands perfectly well what is being done to him. He soon became more alert, took a great deal of interest in his surroundings, and helped some with the trays at meal time. His mother always accompanied him to the hospital and returned in three days to take him home. At first showed no affection for mother, did not want to kiss her good-bye, but cried when left alone. Now he comes and goes to and from the hospital alone. His mother puts him on the trolley, and after a two hours' ride he is met by some one in Trenton, and returns the same way.

He now speaks well, takes great interest in his treatment, does not cry, and, while his knowledge of English is limited, can understand all that is said to him. He is alert, bright, and his conduct is in marked contrast to what it was at the time of admission, six months ago. At home he is about as he was before the onset of the trouble, except that he cannot study and does not learn well at school. He helps with the children and shows marked affection for his family, also for the physician and supervisors. He has some insight into his condition.

Biological Reactions.—The cell count dropped from 19 to 4 after the first treatment, rose subsequently to 9, after a month's interval, and is now 4, at one time being only 2. The globulin content was never high, barely +, and after the treatment became negative, where it has consistently remained. The spinal fluid pressure has dropped from 490 to 250, which is quite marked. The blood Wassermann was ++++ on admission, but has fallen to +, and the Wasserman in spinal fluid dropped from ++++ to negative, once going to 1+, but since October has again been negative.

Colloidal Gold Reaction.—5 5 5 4 4 4 3 1 1 0 0.

Discussion.—This is a case of undoubted congenital syphilis, which was recognized by the family physician, and treatment given before the onset of the paretic symptoms. The Hutchinson's teeth, somewhat backward development, and positive Wassermann in the blood, made the diagnosis possible. He had a sudden shock of a paretic nature, resulting in weakness of legs and mental dullness and stupor. A great deal of credit must be given to his physician, Dr. Chas. I. Silk, for a prompt recognition of the symptoms of the case and the necessity for treatment. The mother has myotic stiff pupils, but all tests were negative and she shows no mental symptoms whatever. Her other children also were examined, with negative results. The father has not been seen.

The case is unique, as it is the youngest case treated so far by the writer, but corresponds to a case reported by Dr. Eugene Riggs, of St. Paul, Minn., which was 8 years of age. The prognosis in this case is good, but probably the boy will always be somewhat defective; however, all symptoms of paresis have disappeared.

CASE 38.—*N. G. Male, age 50. Neurasthenic, depressed type. Duration six months. Marked physical signs. Six Ogilvie and six Swift-Ellis treatments. Rapid improvement. Gain in weight. Still under treatment. Prognosis good.*

Neurasthenic type of paresis of six months' duration in a man 50 years old. No history of lues. Married and has one child. Had been losing weight and had many subjective complaints for six months. The physical signs were well marked. Widely dilated pupils, with no reaction to light. Optic atrophy. Exaggerated knee jerks. No speech or writing defects. Patient came under treatment in December, 1914. Lumbar puncture showed 73 cells per cc., and globulin 2 +. The blood Wassermann was negative, but spinal fluid Wassermann 4 +.

The cell count has gradually decreased to 9, but globulin has changed but little. The blood Wassermann after fifth treatment became 2 +, but then became negative. The spinal fluid Wassermann became negative and then 4 +.

Treatments.—The patient was given three Ogilvie treatments and then three Swift-Ellis, followed by three Ogilvie. Most of the treatments have been three weeks apart, but later we have only allowed two weeks between treatments. The patient has made rapid improvement under treatment. Mentally he had few symptoms, mostly of a neurasthenic type, with some depression and ideas of poverty. These have all left him and he is now cheerful and optimistic, with good insight. The prognosis is extremely favorable in this case.

GROUP 2. MUCH IMPROVED CASES. (7 CASES, 22.5%.)

We have considered in this group seven cases, some of which showed remarkable improvement to the treatment, but had a relapse, and others who showed considerable improvement, but the final mental condition was that of mild deterioration, and, although the process was much modified, we could not say that patient had been totally restored to normal mental condition. Four cases in this group, 4, 5, 30 and 31, were of the typical-expansive type. Duration varied from four months to two years and in case 31, although the mental symptoms were noticed only two years previously, the physical signs of tabes had probably been present for 11 years, as the patient began having crises at that time. Two of the cases, 5 and 8, are still under treatment and prognosis, while not good, can be considered fair, as the treatment has not been continued long enough. Three of the tabetic cases, 5, 30 and 31, showed definite remissions as a result of the treatment, but had pronounced relapses, and one case (31) died, although a month previously he was apparently in normal condition. In this patient the onset of tabetic symptoms were 11 years prior to treatment, and a year before coming to this hospital had taken 10 S.-E. treatments with good results. These were discontinued, however, and when admitted was in a confused state, which rapidly cleared up under treatment here. He had 17 treatments, at first S.-E. exclusively, and later this was alternated with O. M. For a period of nine months patient had parole, occupied himself in a normal way, and there was no evidence of mental symptoms of paresis or physical signs of tabes. He occasionally had a convulsion, after which he was confused. He was considered a favorable case, and, inspite of the fact that treatment had been interrupted for a year. Following an intravenous injection of bichloride of mercury (Brynes), he had a severe collapse and probably a shock as his speech was much affected and marked muscular weakness. He rallied from this, but developed a severe infection of the arm, to which he succumbed about a month later. Another tabetic case (5) showed wonderful improvement after eight S.-E. treatments and was removed by his wife and kept at home seven months. He remained well for about six months, then gradually began to fail, and when returned he had a severe relapse, but was not in as bad a condition as when first admitted. Treatments were continued, S.-E. alternating with O. M., when he again showed marked improvement, but his condition was not equal to that at the time he went home. He had an attack following last treatment (February, 1915) similar to that of the collapse in case 31, showed marked aphasic disturbances and general weakness, with bladder and rectal symptoms. At that time he was getting weekly treatments. He rallied from this shock and a month later (March, 1911) he was removed by his wife with an attendant and since that time he has remained at home, and at the present time (May, 1915) his wife reports that he has improved very much in physical condition, able to be up and around, has no bladder disturbances and is all right mentally, except that he is somewhat irritable and has ideas that he owns a farm in the neighborhood. Memory apparently good. The interrupted treatment for a period of seven months seems to be responsible for the lack of permanent improvement in his condition. The improvement after the first eight treatments in this case was remarkable, as the patient appeared to be in the end stages of paresis. He was a helpless invalid, untidy in his habits; had to have an attendant to care for him, although he was living at home. He showed absurd, expansive delusions, speaking in millions and trillions; attention could not be gained. During his remission he was able to live at home without the services of an attendant or nurse. He was bright, cheerful, alert, much interested in surroundings, but when treatment was discontinued the relapse gradually came on from which he never quite recovered.

Case 30, another tabetic type, presents the similar history to the second case just cited. This patient was in a dull, stupid, apparently demented condition, unable to care for himself, unable to talk, and after 4 S.-E. treatments he improved so much that his wife removed him from the hospital against advice. He remained out four months, gradually became worse and had to be returned. His condition was not quite as bad as when admitted and he was given four more S.-E. treatments, again removed from the hospital and stayed away nine months, during which time his condition became gradually worse. He returned at the end of that time and had three more treatments, but after the last treatment he developed a paralysis of bladder and rectum, with great muscular weakness. and mental condition had become much worse. He was removed by his wife at this time, and for the last ten months has remained at home. Condition has become gradually worse, now unable to walk, but sits in a wheel chair, and mentally he is somewhat dull and stupid, is tractable, but requires constant attention. Similar to other tabetic types just cited the interruption of treatment was responsible for the relapse, and we cannot venture to say what would have been the outcome if treatment had been continued. In all these tabetic types, however, treatment has to be carefully given with the view of suiting the treatment to individual cases. In the two female cases in group 1 very small doses of salvarsan are given intravenously, never over .45 gm., and results seem to be better when small amounts are given to women. One other tabetic type in this group (case 4) showed rapid improvement under treatment and lost his expansive ideas. In this case there was no relapse, as treatment has been continuous, but he never fully recovered his mental condition and is now in a state of mild deterioration. He does not present any marked tabetic symptoms and is able to work about the hospital in a normal manner. He has had one trial at home, but showed marked lack of judgment, wanted to milk the cows in the middle of the night, etc., so it is doubtful if he can ever leave the hospital. The duration of this case was only four months before admission and from rapid improvement made at first we had hopes that he would finally recover. His reactions are all negative and in all probability the disease process has been arrested, but left him in a state of mild deterioration. Another case (14) was a juvenile type, duration one and one-half years before treatment. When admitted he was apparently much demented and showed marked physical signs. He improved considerably under treatment and changed from a dull, stupid, inactive patient to an alert, active and occupied one. He was given 18 treatments, but after first improvement his general condition remained the same and he has continued in the condition described. The reactions taken a year later, however, show that the process is continuing. Treatment was discontinued, for it was proven that the climax of his improvement had been reached. Two cases (8 and 35) are still under treatment with fair prognosis in each. One of them (8), is a female patient, in which the duration extends over one year. In this case there was very marked improvement after first treatment and she was able to have parole. She walked away from the hospital, went to her home in Asbury Park and remained out two months. She got along all right at home, but it was necessary to return her to the hospital because of legal complications, and during the interval she had shown a relapse. Since treatments have been given weekly, however, she has shown some improvement and prognosis in this case is only fair. The weight of the patients in this group was much influenced by the treatment, this increase varying from 5 to 40 pounds. When the treatment was interrupted, however, the weight showed a tendency to fall, as in case 5 from 165 to 140, and in case 14, since treatment was discontinued, the weight has dropped from 140 to 125. But while under treatment in all cases there was a marked improvement shown on the weight charts.

BIOLOGICAL REACTIONS IN GROUP 2.

Cell Count.—In all cases of this group cell count was high, varying from 14 to 60, and in the majority of cases, as in group 1, the cell count dropped rapidly under treatment to negative. In cases where treatment was interrupted the cell count did not always increase, but in case 5 there was a jump from 5 to 14. In cases 4 and 14 marked abnormality in the cell count was noticed (see charts); when heterogenous serum was given intraspinally to these patients the cell count rose in case 14 from 3 to 14, fluctuated, but remained up until he had four such treatments, and when this treatment was discontinued the cell count dropped to normal again. In case 4 the same condition was noticed as a result of a similar serum. The cell count increased to 30, finally dropped to 3 when the regular treatment was given. In case 14, after a year's interruption of treatment, the cell count has gone from 2 to 17. The other cases show no marked variations in the cell count, except case 35, where the cell count has been reduced from 20 to 4; there has been a tendency to great fluctuations between 5 and 50, but at present the cell count shows a tendency to become less. This patient received at first two intercranial injections (Wardner), but on account of uncontrollable circumstances this treatment had to be given up.

Globulin Content.—The globulin content in the majority of this series was low. In four cases it was not above 2 +. In one case (5) the globulin was persistently 4 +, when it began to break after 10 treatments, then it fluctuated between 4 + and −. In one case (30) globulin was berely + and never any higher than

2 + and in one case (31) was negative, gradually fell to 2 + and finally at time of death was barely +. In the majority of cases the globulin content varied with cell count with the exception of case 5, where, in spite of cell count being negative, the globulin persisted at 4 +. In cases 4 and 14, where heterogenous serum was given, the globulin showed the same fluctuations as the cell count. In case 8, after two month's interruption of treatment, the globulin became strongly positive and cell count increased from 1 to 12. In case 4 the globulin has been negative for over nine months, and cell count correspondingly low. In case 14, after interval of a year, the globulin was increased from − to 2 +, and cell count from 3 to 18. The globulin content in group 2 differs from that in group 1 in that the majority of cases show a weak globulin content, whereas in group 1 the globulin content was stronger. It seemed difficult to attach much significance to the strength of the globulin content, but it would seem that in cases where it was very strong, 4 + at the beginning of treatment, the patient showed more improvement than in cases where the content was weak. This is especially noticeable in the two groups. The presence of the globulin content in the spinal fluid has not been satisfactorily accounted for. In some cases it would seem to vary with the cell count, but in others, where the cell count has become normal, the globulin has remained strongly positive, and in two cases of our whole number (31) this finding has been persistently negative from the first. It is one of the most consistent findings in paresis and these two cases, one in group 1 and the other in group 3, are the only two where the globulin was negative out of some 200 cases of paresis examined. There is no question as to the value of the globulin content from a diagnostic standpoint, but there is much to be learned as to its exact significance.

WASSERMANN REACTIONS.

In five cases out of seven the spinal fluid Wassermann reaction was strongly positive and in four cases it has remained consistently 4 +. In two of the cases (14 and 4) the reaction has not been so strong, and has shown fluctuations between 2 + and negative. In the case where the spinal fluid Wassermann has remained 4 + the clinical symptoms have not shown much improvement. In case 35 treatment has not been continued long enough to determine the outcome. In case 8 there has been a tendency of the Wassermann reaction in the spinal fluid to become weaker. The blood Wassermann in three of the cases was strong 4 + before treatment was begun, but in all cases there have been marked fluctuations with a tendency of the blood Wassermann to become negative. In case 5 this reaction persisted at 4 + for five months, gradually becoming less until it became negative. In one case (31) the blood Wassermann was negative and remained so for five months, then became positive and finally became negative. As in the first group the Wassermann reaction in the blood has been fortunately easier to modify than the reaction in the spinal fluid.

(To Be Continued.)

Notes and Comment.

GRATIFYING ACTION OF THE RECENT CONSTITUTIONAL CONVENTION IN NEW YORK.—At one stage of the activities of the New York Constitutional Convention the friends of good insane hospital administration had grave apprehensions as to the future management of the state hospitals. Many worshippers of the new-found idol, known as "Efficiency," were untiring in their efforts to vest the ultimate control of all charitable institutions including hospitals for the insane in a single Commission of Public Charities and at one time there seemed reason to fear that these efforts would be successful. There were many objections to such a centralization of power. It involved the great danger of a loss of medical control of hospitals designed for the treatment of disease. This control had been three-fold in character under the existing constitution as shown by the provision that the Hospital Commission should possess, first of all, an experienced alienist physician to guard the medical work and to provide for a careful medical supervision of every one of the 14 hospitals, a lawyer to establish and maintain proper safeguards against the illegal detention of patients and a business man to enforce economies and proper expenditure of public funds. These activities had placed the hospitals of the state upon a high plane of efficiency and the severity of the labors of all members of the commission had demonstrated the need of such three-fold cooperation. Fortunately the question was referred to the Committee of Charities which gave a series of hearings and made a praiseworthy effort to secure expert opinions upon the subject. Many persons appeared before this committee, including alienists, superintendents of state hospitals and public spirited laymen. After these hearings the committee made the following report which is worthy to be published in full as an excellent summing up of the whole question.

To the Delegates to the Constitutional Convention:

The Committee on Charities of the Constitutional Convention desires to call your attention to the provisions of the enclosed amendment, No. 378, Int. 371, introduced by Mr. Steinbrink, and hereby reported for your favorable consideration.

The importance of the department for the insane is shown by the fact that it includes 14 hospitals, over 33,000 patients, 6000 employees, and 200 medical officers. The appropriations necessary for caring for the insane and providing for their proper accommodation during the next fiscal year amount to approximately eight and one-half million dollars. The total number of admissions to the hospitals during the last fiscal year amounted to 7,956 and the discharges to 7,264. The average annual increase in population has amounted to about 800 patients during the last 15 years. This is now the largest undertaking of a medical and curative nature maintained by any government in the world, and by the time of the next Constitutional Convention the population of the hospitals will undoubtedly reach 50,000 or 60,000 and the number of employees 10,000.

The accompanying proposal amends Section 11 of Article VIII of the present Constitution and continues " a state commission in lunacy in which shall remain the management and fiscal control of the state hospitals for the insane (not including institutions for criminals and convicts) except in so far as such management may now or hereafter be delegated by the legislature to local Boards of Managers."

Section 11, as it reads at present, authorizes the State Commission in Lunacy to visit and inspect all institutions either public or private used for the care and treatment of the insane (not including institutions for epileptics or idiots).

Section 13 of the Constitution of 1894 provided that " existing laws relating to institutions referred to in the foregoing sections and to their supervision and inspection, in so far as such laws are not inconsistent with the provisions of the Constitution, shall remain in force until amended or repealed by the Legislature." This section indicates that the Constitution of 1894 intended to recognize not only the power of the Commission to visit and inspect institutions for the insane, but fully recognized the financial control of the institutions conferred upon the commission by the Legislature in 1893 and the general administrative jurisdiction over the hospitals authorized by other statutes.

The Commission in Lunacy has entire administrative and financial control of the state hospitals for the insane since 1893. You will observe that the provisions of the proposed amendment as submitted by this committee merely continue the powers conferred upon the Commission in Lunacy by the Legislature prior to the amendments of 1894 and recognized in the Constitution at that time. Your committee, after careful study of the administration of the hospitals for the insane, is firmly of the opinion that the present methods of management and control should be continued and should be clearly defined in the Constitution. The hospitals for the insane should be kept entirely out of the domain of politics and should not be liable to radical changes, which, at the present time, may be made at any session of the Legislature.

As a result of several public hearings held by the committee, and investigations by sub-committees and numerous communications which have been received from the friends and relatives of patients in the hospitals for the insane, it is convinced that those who are most concerned in the welfare of the hospitals are unanimously opposed to any change in the present methods of administration. The public hearings held by this committee were attended by members of the Boards of Managers of all the hospitals, superintendents of a number of these institutions as well as representatives of various charitable, medical and other organizations. The committee has also consulted many other acknowledged authorities familiar with the affairs of the institutions and the history of the hospital service, and finds that their views are fully in accord with those already expressed by us.

After a careful investigation of the subject this expression of views would seem to voice the sentiments of the entire people of the state.

While various propositions relating to the administration of the hospitals and charitable institutions of the state have been submitted to this committee, we are of the opinion that the amendment which we are recommending for your approval is the only one which should be contemplated at this time.

In addition to the duties mentioned above, the Commission in Lunacy also inspects at least twice a year the institutions for insane criminals and convicts as well as 24 licensed private institutions.

An evidence of the standards maintained by this department is shown by the recent award by an international jury at the Panama-Pacific Exposition of the highest prize to the State Hospitals of New York.

The economical administration in the expenditure of these funds appears from the fact that the average annual per capita cost of maintenance of the insane in the hospitals was only $208.91 during the last fiscal year, or, in other words, 57 cts. per day.

The entire care of the insane was undertaken by the state in 1889, at which time there was an insane population in the hospitals of 16,000. Since then it has grown to 33,000.

The magnitude of this undertaking as shown by these figures is such as to clearly indicate the inadvisability of combining this department with any other. Consolidation without beneficial result is folly. To consolidate merely to promote an idea is without sound reason. Where a department or branch of government has attained a point of efficiency which marks the apex in the present state of the development of medical science at the very minimum cost, it necessarily follows that to combine its activities with those of other departments, leads inevitably either to an impairment of its efficiency or an increase in cost of maintenance and probably to both.

The high standard of efficiency in the New York State Hospitals, as a result of the administration, which we propose to continue, has been such that it has been copied by others, and it is universally acknowledged that the care of the insane in New York has reached a higher standard than in any other state. The cost of caring for the insane in this state is lower than that in other states where the standards are not so high.

The history of the department shows that the hospitals for the insane were governed by local Boards of Managers for 30 years, by a single commissioner for 16 years and by a commission as constituted at the present time for 26 years.

The present method of administration was adopted by the Legislature after a careful investigation of the conditions prevailing in the state institutions, by a Senate committee.

The Charities Committee is, therefore, firmly of the opinion that there is not only no indication of a necessity of any change in the present method of government of the department, but that any changes would be highly unwise and would seriously threaten the welfare of the insane wards of the state. To inaugurate a system of care in this state, which has proved unsatisfactory in others, would be highly disastrous.

We, therefore, urge upon the Convention the wisdom of continuing a form of government of the hospitals for the insane which has stood the test of the last 26 years and which seems to meet with the entire approval of the people of the state.

J. W. WADSWORTH, *Chairman.*

The Steinbrink Amendment, above referred to, was adopted by the Convention August 31, 1915, on a final vote of 116 ayes to 7 noes. This amendment had been prepared by a Committee of Superintendents and Boards of Managers, and provided that there should be a " State Commission in Lunacy, in which shall remain the management and fiscal control of the state hospitals for the insane (not including institutions for criminals or convicts) except in so far as such management may now or hereafter be delegated by the Legislature to local Boards of Managers, and which shall visit and inspect all institutions, either public or private, used for the care and treatment of the insane (not including institutions for epileptics or idiots)."

Aside from giving permanence to the State Hospital Commission in the Constitution, this amendment was the first to place in the Constitution a recognition of the Boards of Managers of State Hospitals.

The so-called short ballot amendment had established a Department of Charities and Corrections, the head of which " shall be the Secretary of Charities and Corrections. He shall have power of inspection and supervision of all state charitable institutions, state hospitals for the insane, state prisons, and other state correctional institutions."

It is believed that the passage of the Steinbrink Amendment will, if adopted by the people, place the state hospitals on a more stable footing than ever before and practically beyond the reach of partisan politics.

The State of New York and the medical officers of the state hospitals for the insane, are to be congratulated upon the successful outcome of the labors of the friends of a stable and enlightened management of these institutions.

MENTAL EXAMINATION OF INMATES OF THE MASSACHUSETTS STATE PRISON AND STUDY OF THE CRIMINAL INSANE AT THE BRIDGEWATER, MASS., STATE HOSPITAL.—At the end of July last, Dr. A. W. Stearns had completed an examination of 100 cases in the Massachusetts State Prison at Charlestown, taken in the alphabetical order in which the inmates were recorded at the prison. The result of Dr. Stearns' examination, as far as the presence of psychoses is concerned, is not yet published. Mr. C. S. Rossy, special investigator, gives, however, in the September Bulletin of the Board of Insanity the results of his study of 47 of these cases who had been referred to him for psychological examination. In this examination the Yerkes-Bridges Point Scale was employed supplemented by the Binet-Simon Scale in cases when the diagnosis was uncertain.

The ages of the prisoners examined ranged from 18 to 59 years but the mental age as determined by the examination in no case reached above 15 plus.

Twenty-three of the 47 cases examined were diagnosed as feeble-minded and 5 as border-line cases. Of the 23 feeble-minded cases 2 fall in the imbecile group, 8 are low-grade morons and 13 high-grade morons. All of the 23 were committable cases to institutions for feeble-minded, and yet as shown by the criminal record of the cases many had served repeated terms of imprisonment for various offenses against the law.

No more striking illustration of the necessity of a reform in the methods of dealing with delinquents and the demand for a psychiatric study before commitment rather than after repeated arrests could be given. Here in 100 cases taken in alphabetical order 47, nearly one-half, were regarded with sufficient suspicion to warrant their being subject to further examination, which resulted in 23 being found to be feeble-minded to such a degree as to make them committable to an institution for mental defectives. Had these 23 been examined and committed to such an institution at the outset of their criminal career, the expense of repeated arrests and trials would have been saved to say nothing of the repeated depredations which they committed.

The examination of the criminal insane at Bridgewater, emphasizes the lesson. Dr. Stearns says: "The relation of the onset of mental disease to the present arrest shows a tremendous neglect of the mental condition of prisoners by judges. From histories obtainable, many of them meager, 32.7 per cent of all admissions showed undoubled evidence of insanity, before sentence, while 15.3 per cent had been committed as insane previous to their arrests. One hundred and twenty-one of the 793 patients at Bridgewater had been once or more committed to an institution for the insane before the arrest and conviction which sent them to prison and thence to the Bridgewater hospital. Surely a cursory examination of the past histories of these cases should have brought these facts to light and suggested some inquiry into the prisoners' mental status.

Book Reviews.

Sixteenth Annual Report of the State Board of Insanity of the Commonwealth of Massachusetts for the year ending November 30, 1914. (Boston: Wright & Potter Printing Co., State Printers, 32 Derne Streets, 1915.)

Especial interest attaches itself to this report by reason of its being the first made by the newly organized State Board. The re-organization of the Board took place August 1, 1914, following an act of the legislature dated July 7, 1914, which act is printed in full, and from it we learn that the Board is given somewhat greater powers than were conferred on the former Board. Whether the present plan is better than the old one is impossible to say, but from the report one should judge that the new Board is anxious to keep up the same excellent standard of state care which has been heretofore practiced. There are, of course, the usual statistics which are well and conveniently arranged, the very interesting report of the pathologist, Dr. Southard, extracts from various hospital reports, and records of the two semi-annual conferences which the Board has been holding for several years. The subject discussed at the first conference was Hospital Organization: 1. Trustees: Object of and responsibility of. 2. Superintendent: duties of. 3. Officers and employees: organization of. Those discussed at the second conference were: 1. Uniformity of hospital records and better classification of patients. 2. Slippery floors as a means of accident. From the last one can understand how thorough is the oversight exercised by the Board. There is much of interest in this report and it is well worth reading. W. R. D.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second Series. Vol. XX. V.-Water-works. (Washington: Government Printing Office, 1915.)

The present volume of this series is smaller than any of its predecessors. Among the many interesting subjects contained in it are Vaccine, Vaccination, Venereal, Ventilation, Vision, Water, etc. We even find numerous references to the subject of Vermin and their extermination. A curious reference is the following: "Vermin-killer (The); being a complete and necessary family-book, showing a ready way to destroy adders, badgers, birds of all sorts, earwigs, caterpillars, flies, fish, foxes, frogs, gnats, mice, otters, pismires, polecats, rabbits, Norway and other rats, snakes, scorpions, snails, spiders, toads, wasps, weasels, wants or moles, worms in houses and gardens, bugs, lice, fleas etc.; also several excellent receipts for the cure of many disorders; amongst which are Dr. Mead's, for the bite of a mad dog;

Mrs. Stephens, for the gout, etc., and some useful directions for gardening and husbandry, and likewise for travelers, in regard to the management of a horse on a journey, etc.; with many curious secrets in art and nature. 84 pp. 12°. London, W. Owen. (n. d.)." Was ever so much information given in 84 pages before or since? And should we not be thankful that we are no longer troubled with such a frightful array of vermin. Perhaps the information in the above book is responsible for their diminished numbers.

As usual the printing and binding of this volume of the Index-Catalogue is up to the same excellent standard of its predecessors. W. R. D.

Occupation Therapy: A Manual for Nurses. By WILLIAM R. DUNTON, JR., B. S., M. A., M. D., Assistant Physician at Sheppard and Enoch Pratt Hospital, Towson, Md.; Instructor in Psychiatry, Johns Hopkins University. 43 illustrations. (*Philadelphia and London: W. B. Saunders Company, 1915.*)

This book is described as a nurses' manual, but is not without interest for psychiatrists, especially those engaged in hospital work. The author states it is an outgrowth of a series of talks given to the nurses at the Sheppard and Enoch Pratt Hospital, and it must be concluded, therefore, that the nurses at that hospital have been especially fortunate in the instruction they have received. While the purpose of the book precludes an exhaustive discussion of all features of occupation therapy, it sets forth in a concise manner and in simple, non-technical language the sound psychological basis upon which such therapy rests. There has been inserted the scheme formulated by Dr. Clarence B. Farrar to illustrate psychologic analysis, which should greatly assist nurses in understanding the psychologic mechanism of recovery by occupation.

The readers' interest in occupation should be increased by an interesting chapter on the historical development of occupation as a therapeutic agent, which shows that while its value was recognized by some pioneer psychiatrists many years ago, it is only in comparatively recent times its worth has been generally recognized, and it has been generally adopted and systematized.

The author properly insists that the object of occupation is not so much to produce trained craftsmen as to develop interest and stimulate initiative, therapeutic effect being the one object to be sought, a truism which nurses engaged in such work do not always remember, especially those expert in some particular craft.

In discussing the advantages and disadvantages of a nurse working in a hospital, as compared with one engaged with a patient at home, reference is made to the value of example as incentive, it undoubtedly often being a powerful influence in gaining a patient's cooperation. Example, however, is just as potent, displayed in a "working party" as in a "gang." A euphonious term in daily use is not without value. The author indicates that the chief disadvantage encountered in occupation work in a hospital is the lessened opportunity for individual attention, and this is undoubtedly true, but can be largely overcome by making occupation work not only a special activity but a daily ward activity, through the instruction of ward attendants and nurses, an object which the use of this book will materially aid.

The conclusion that competition is stimulating to some patients and discouraging to others is borne out by experience, and the exact method to be pursued in a given case must be determined by the judgment of the instructor. Experience likewise bears out the conclusion that the granting of a privilege is preferable to a bestowal of a tangible prize as reward for work accomplished. While the author does not mention cash rewards, they are particularly to be avoided, as tending to produce jealousy and dissension, because no hospital can give cash rewards to all occupied patients and even justice cannot be attained; whereas by the use of such privileges as the author suggests, such as parties, teas and entertainments of various kinds, all patients occupied in any special kind of work can be made to feel their efforts receive the same recognition as those of their fellows. The most helpful reward, however, is the consciousness of assisting in their own improvement or recovery, an idea which should be repeatedly suggested to the convalescent and all those possessing any degree of insight.

A chapter on reading affords numerous helpful and practical hints. Especially useful are the various outlines given for courses of reading, they being chosen for numerous varying degrees of mental capacity.

A discussion of physical exercise is likewise eminently practical. The only special exercises suggested are simple ones, which do not require special apparatus. However, for those desiring to study the subject further, numerous references are given to works treating of physical culture alone.

The greater portion of the book is devoted to detailed descriptions of the various forms of occupation found useful with the nervous and insane, including puzzles, card games, string work, paper work, wood work, weaving and basketry, chair caning, book binding, stenciling, plastic work, metal work, gardening and nature study, drawing and painting, needlework, etc. So far as the reviewer is aware, there is no form of occupation work in use in any hospital for the insane which has been omitted, but it is to be doubted if any single hospital has developed all those considered, so exhaustive is the list. The author disarms criticism in reference to the chapter on needlework by stating that his information was obtained from an authoritative feminine source, and certain it is that the chapter treats of the subject in great detail, in which respect it does not differ from most of the other chapters treating of the other forms of occupation. While the amount of detail given is sufficient to give instruction in all the commoner forms of occupation, there are numerous references to other authors for those wishing to pursue any special subject in an exhaustive manner. Numerous illustrations add to the value of this section, which despite the mass of detail given is written in an entertaining style, and it is doubtful if the subject matter could be presented in a more readable form or one easier to assimilate. Especially useful are the interesting facts and the information given regarding the history of various occupations, which should not only prove of great assistance in securing a patient's interest, but should stimulate the instructor's interest in the work.

The fact that occupation should not be pursued to the point of fatigue, should be as pleasurable as possible and that recreation should be an accompanying feature is emphasized and definite suggestions are made in suggesting plans of instruction. The author's fear should not be realized that certain jesting passages in the text should be cause for criticism, for he appears to simply follow his own advice.

In summarizing conclusions it is stated that occupation should be new and unfamiliar to a patient, in order to arouse and hold attention. While it may be admitted that such conclusion holds true in many cases, and perhaps in a majority, there are certain deteriorated cases who are so out of contact with their environment that little success is attained in attempting to teach them unfamiliar occupations, whereas not infrequently the remnant of former knowledge and capacity which remains can be utilized in securing at least a degree of purposeful activity.

However, one cannot differ with the conclusions that aimless work should be avoided, that occupation should lead to an enlargement of a patient's mental horizon and to study and interest in associated things, that the nurse should participate in the occupation, that a patient should be encouraged by praise and above all that it is better a patient should do poor work rather than none at all.

A feature of the book not to be found elsewhere, and of special value to psychiatrists is a bibliography of occupation therapy, which shows that the literature on the subject has shown a remarkable growth during recent years.

It is to be hoped that this book may soon be found in the nurses' library of every hospital for the insane doing occupation work, which means every hospital which is doing its full duty. But although a nurses' manual, hospital physicians will be well repaid for reading it, for, after all, occupation therapy is distinctly a medical matter, and should be under the close supervision and guidance of the physician, no matter how competent the director of occupations.

C. F. H.

Half-Yearly Summary.

ALABAMA.—*Alabama State Hospital, Tuscaloosa.*—The Alabama Society for Mental Hygiene was organized at this hospital on June 21, 1915, Dr. John W. Abercrombie being elected president, Mrs. S. B. Locey and Prof. Charles A. Brown, vice-presidents; Mrs. R. D. Thompson, secretary; and Dr. William D. Partlow, treasurer.

CALIFORNIA.—Contract has been awarded to a San Francisco firm for the erection of three buildings of the new state hospital at Norwalk. The buildings to be erected are a two-story edifice 200 x 60 feet, which is to be used for general hospital purposes, a one and one and a half story kitchen and dormitory 260 x 50 feet, and a one-story power house 110 x 60 feet. The contract for the erection of these buildings amounts to $115,000.

—*Napa State Hospital, Napa.*—This hospital has, at the present time, 2181 inmates. On July 1, 1912, the patients numbered 2038. This increase of 143 patients covering a period of two years and nine months does not include a transfer of 100 patients to Agnew State Hospital in August, 1913. About 15 months ago, the east wing of the Receiving Hospital, which under former superintendents had remained vacant for three years, was opened for the treatment of acute, quiet male patients; while a cottage hitherto used for the housing of chronic invalid cases has been remodeled into a psychopathic ward for acute, disturbed men. This unit is a brick structure containing two large dormitories, so constructed with a number of alcoves opening into them and provided with folding doors for the temporary isolation of noisy cases, that all patients may be watched from a central point. This watch-ward will be occupied next month. A bill is now before the legislature asking for an appropriation to meet the expenses of remodeling a similar cottage for women. When this is finished, the hospital will have four psychopathic wards (two for each sex) for quiet and disturbed patients, the latter being then housed away from the quiet cases and outside of the main institution, but still fairly centrally located. The four wards will have an equal and up-to-date equipment and will all be in charge of trained female nurses, except in the acute disturbed cottage for men, where only two out of five nurses will be women.

The wooden tent colony, which when fully occupied in April, 1915, will contain 320 patients continues to give satisfaction. The 18 cottages, including one occupied by nurses and a hospital cottage, are only occupied at night—during the day the patients spend part of their time in the central, large sitting-rooms (which are heated in winter), but are mostly out of doors. In the direction of the chaparraled hill and orchard in the rear, the large grounds around the cottages are guarded by a large-meshed wire fence. The front is to be open as soon as the grounds separating the colony from the avenue in the rear of the main institution has been parked.

A group of six brick cottages—all open but one—accommodating 50 working patients each, has been completed during the year of 1913, and a seventh structure placed some distance back of these, is about ready for occupation by convalescing male patients. This unit has been given the necessary equipment for close attention to mental manifestations foreshadowing recurrent attacks. The old assembly hall for general entertainments, which was located in the center of the main building and has been a source of disturbance to all acute cases, has been replaced by the new recreation hall, which has been built just outside of the cypress hedge outlining the male side of the large park grounds, where 800 men and women patients have daily exercise. The hall accommodates over 800 and has three distinct modes of entrance and exit for patients without parole, paroled patients and employees and visitors. The building is provided with a spray and a locker-room, equipping it for gymnastic purposes, and also contains a large room where staff conferences are held on three afternoons of the week.

A serological and pathological laboratory, in charge of Dr. W. T. Harrison, lately of the Bellevue Hospital College, has been established in the basement of the hospital for quiet, acute cases. The legislature which will soon adjourn has denied a request for an enlarged, centrally located and up-to-date laboratory with autopsy facilities, but it is to be hoped that some local means may be found for the construction of this very necessary outfit.

The institution has been enabled by appropriations made by the last legislature to make a number of improvements in the direction of the physical welfare of the inmates, all of which have now been completed, viz: the installation along economic and efficient lines of a new heating system for the supply of heat to all parts of the main building, as well as to the outlying cottages and residences; a new electric lighting system, which has placed electric ceiling lights in nearly all the rooms occupied by patients, all lights being controlled by patent lock switches; a new telephone system with single lines to every ward and signal lights instead of bell ringing in the psychopathic wards for the acute, quiet cases; a new laundry—one-story brick structure 185 feet long; a concrete dairy barn, to accommodate 200 milch cows, with two silos and a new milk room, and a dormitory for the accommodation of milkers and patients employed about the dairy. In all details, the dairy promises to be a model one—the most up-to-date public dairy in this state. Not only will this be the case, but the herd of dairy cattle has been greatly improved, especially by the purchase of registered cattle.

The reclamation of the lowlands of the hospital, which is being completed at the time this report is being written, will enable the institution to raise most of the hay and potatoes annually needed, the more elevated part of this land having previously been equipped for an irrigation plan, which will allow the water to reach the bottom land when required. In all, the hospital has farm and grazing land to the extent of over 1900 acres.

Since the above report was written, special appropriations were passed by the legislature this winter to the amount of $72,500. Among these appropriations, is an allowance of $30,000 for two cottages for men and women patients, to be used as an infirmary, the entire charge of which will be in the hands of women nurses. An allowance of $15,000 has been made for the remodeling of the South Pay Cottage into a psychopathic ward for acute disturbed women patients, equipped with hydro-therapeutic apparatus, etc. A similar sum is to be devoted to the construction of an outlying department on the reclaimed lowlands of the Institution.

A small ranch of 160 acres, essential to the future water supply of the Institution, is about to be purchased under a special appropriation.

A new Superintendent of Nurses will enter upon her duties at the end of this month. She is a graduate of the St. Lawrence State Hospital at Ogdensburg, N. Y., and has had extensive experience in state hospital work. It is the intention to start a training school for nurses at the hospital about the beginning af the year, and at this time the position of work-therapist will be created.

CONNECTICUT.—*Connecticut Hospital for the Insane, Middletown.*—During the latter part of February, 1915, an epidemic of tonsilitis developed in this hospital, and before it could be controlled 150 persons contracted the disease, of whom 88 were employees. Glandular complications appeared in a number of cases, and ten deaths occurred which could be directly attributed to the disease. At the time, a similar epidemic was present in the neighboring community, and it appears probable that the source of the infection was outside of the hospital, as special bacteriological examinations were made of the milk and water, but with negative results. The disease was found to be a streptococcus infection, and was finally controlled by the use of autogenous vaccines made in the hospital laboratory.

All patients under 55 years of age, except those who are for special physical conditions exempted, are protected by typhoid immunization. During the past summer, all cases immunized two years ago have been tested with typhoidin to determine present immunity and need for revaccination.

Extensive repairs and improvements have been made at the Silver Mine House, including the construction of a cellar beneath.

A brick addition has been constructed to the chlorine treating plant, where a venturi meter has been installed to measure the amount of water consumed by the hospital.

—*The Hartford Retreat, Hartford.*—The verandas on the women's side are being rebuilt to convert them into sleeping porches, which will give an additional accommodation for 18 beds. A new suite of rooms to be devoted to hydrotherapy will be ready for use early in October.

—*Connecticut Training School for Feeble-Minded, Lakeville.*—The last legislature appropriated $200,000 to build a new school for the feeble-minded, on land owned by the state at Mansfield. Building operations will be started very soon, and it is expected to build modern, fire-proof buildings. The bill allowing the appropriation also provided that the name should be changed from "The Connecticut School for Imbeciles" to "The Connecticut Training School for the Feeble-Minded." At the present time it is possible to care for 300 cases.

FLORIDA.—By an act passed by the last legislature a commission was created to investigate the need of state institutions for the care of epileptics and feeble-minded. The commission consists of five persons, one of whom is necessarily a licensed physician. It is authorized to call on physicians of the state and authorities of city, county, state, and private institutions for information which will enable it to report to the next legislature. $500 is allowed for its expenses.

—*Florida Hospital for the Insane, Chattahoochee.*—At this hospital a complete new water and sewage system, including a water filtration plant, is now under construction. A receiving hospital, 220 feet long by 40 wide, of two stories, and with a capacity of 75 patients is completed and occupied. In this there are the offices of the physicians, drug room, diet kitchen, operating room, anæsthetic rooms, and other rooms. It is a valuable addition to the hospital. A building for white tuberculous patients has also been erected and additions or extensive repairs have also been made to a number of other buildings.

ILLINOIS.—The Illinois State Charities Commission appointed a committee to draft a bill for the care of the feeble-minded. The committee consisted of Mr. Sherman C. Kingsley, chairman; Drs. Anna Dwyer, H. Leonard, and Clara Harrison Towne; Messrs. Albert Huber, Harry Olson, and Peter Reinberg; Prof. Schofield, Miss Minnie F. Loe and Mrs. A. E. Walke. Prof. Schofield drafted a bill giving the state the power to detain permanently its feeble-minded charges, providing state care for feeble-minded adults as well as well as children, giving the state power to care for feeble-minded delinquents, and creating an institution for the care of feeble-minded women adults.

The fourth annual meeting of Alienists and Neurologists of the United States was held in Chicago, July 12-17, 1915. A very interesting program was held. The meeting was under the auspices of the Chicago Medical Society.

—*Chicago Psychopathic Hospital, Dunning.*—Drs. Harold N. Moyer, Hugh T. Patrick, and Sidney Kuh were appointed a committee to investigate this hospital and on July 9, 1915, reported to the Cook County Board that equipment which was purchased with the funds appropriated for the Psychopathic Hospital had been diverted elsewhere, that there had been general inefficiency of management, and an inadequate personnel. They recommended that the hospital be taken from the management of the county hospital, that at least three physicians and several nurses be added to the staff, that proper records be kept, and that provision be made for after care.

An examination for the position of Resident Physician at this hospital was held on September 2, 1915, at the Cook County Courthouse.

During April a threatened epidemic of measles at the children's department of the county hospital necessitated the use of one of the wards of this hospital for quarantine purposes.

—*Watertown State Hospital, Watertown.*—The annual meeting and election of officers of the Illinois State Hospital Medical Association was held at this hospital, April 29-30, 1915. Dr. Charles F. Reed of the Peoria State Hospital, was elected president; Dr. Charles B. Caldwell of the Lincoln State Colony, vice-president; and Dr. Ralph R. McCarthy of the Chicago State Colony, secretary.

—*Chicago State Hospital, Dunning.*—The policy of non-restraint formerly inaugurated has been continued successfully.

The practice of employing women nurses on male wards is being gradually extended and has, on the whole, given favorable results. It would seem that there are few departments, if any, in an institution of this kind, where women may not with safety and propriety be employed as nurses of the insane.

Two cottages with modern equipment for hydrotherapy are nearing completion, and will be used for receiving wards during the coming year. Three cottages for chronic insane, a nurses' home, administration building, and a power-house with a system of tunnels are now under construction. Appropriation for a new and larger amusement hall has been recommended, as the present one is entirely inadequate.

Many cases of drug addiction have been received since the Harrison law went into effect. Two methods of treatment were followed with apparently equal success. The first employed was the Lambert-Towne method. Later this was abandoned and the patients were given gradually decreasing doses of some derivative of opium, combined with cathartics and tonic treatment as indicated. The drug was entirely withdrawn after a period varying from one to two weeks, according to the condition of the patient. No untoward results were observed in cases where this latter method of treatment was employed and the results seemed to be ultimately as satisfactory as with the Lambert-Towne treatment.

INDIANA.—In April, 1915, the Governor appointed a committee to investigate the causes and prevention of mental deficiency. This committee consisted of Drs. George F. Edenharter, Superintendent of Central Indiana State Hospital; Samuel E. Smith, Superintendent of Eastern Indiana State Hospital; Charles P. Emerson, Dean of Indiana University School of

Medicine; Walter C. Van Nuys, Superintendent of Indiana Village for Epileptics; and George S. Bliss, Superintendent State School for Feeble-Minded.

—*Central Indiana State Hospital, Indianapolis.*—New buildings are needed at this hospital, but an attempt is being made to concentrate all the eleemosynary institutions of Marion County at Julietta, which is not far from Indianapolis. A municipal tuberculosis hospital and a home for orphans have been planned. As yet no positive action has been taken.

—*Northern Hospital for Insane, Logansport.*—Fire destroyed the hospital and infirmary ward in the department for women on April 22, 1915. Eighty-five patients were safely removed from the building, which is now under-going repairs and which will be ready for occupancy within the next month.

A $45,000 kitchen and dining-room addition was completed and occupied the first of June.

A $12,000 modern dairy barn was completed and occupied about the same time.

New loggias have been constructed in connection with the terminal buildings in both the department for men and the department for women..

—*Indiana State School for Feeble-Minded, Fort Wayne.*—This institution is filled to its capacity and has more than 50 applicants on the waiting list who cannot be accommodated. Dr. Bliss, the superintendent, has recommended that the state purchase a new farm of one or two thousand acres to be used in conjunction with the present plant. Accommodation is needed especially for adult females.

IOWA.—*State Epileptic Colony, Woodward.*—A contract was awarded July 15, 1915, to a Minneapolis firm for the erection of a group of 13 buildings for the sum of $230,602. Ten of the buildings form the hospital group, the others being the power-house, service, and laundry buildings.

—*The Retreat, Des Moines.*—This is a large brick four-story mansion, including the basement and attic stories, and having large rooms. There are also seven frame buildings or cottages, two of which are occupied by the staff physicians, and the remainder by men and women patients. There is also a frame building which is used as a bath house. All of this group is situated in a tract of 40 acres, a part of which is used as a garden and orchard, and the remainder being in natural timber. The capacity is 50 beds, 25 for each sex. The establishment is intended for the accommodation of the people of the state of Iowa, and the character of the quarters is suitable for an agricultural community containing few large cities and with the wealth quite equally distributed among the inhabitants. It is more for the purpose of studying cases, in order to determine the etiology, pathology, diagnosis and prognosis, and also the kind of care which the patient under care shall receive in the future, than for the purpose of curing patients or of giving them custodial care for years. The average time under care is two months, and about 200 patients have been admitted and discharged during the past year, although the average population has not been over 35.

LOUISIANA.—At a public conference held May 6, 1915, steps were taken towards organizing the Louisiana Society for Mental Hygiene. Mr. Clifford W. Beers explained what steps had been taken by similar societies in other cities. Charles F. Fletchinger was elected temporary president, and Dr. Maud Loeber, temporary secretary.

MARYLAND.—On May 18, 1915, the State Lunacy Commission transferred over 200 patients from the Spring Grove and the Springfield Hospitals to the new Eastern Shore Hospital at Cambridge, the patients being taken to Baltimore by a special train from Sykesville and special trolley cars from Catonsville. From Baltimore the trip to Cambridge was made on one of the city boats, the Latrobe. Besides the boat crew, there were about 30 nurses and physicians who looked after the patients. Two meals were served on the trip, which was made without accident, except that one patient was in such a hurry to land that he jumped overboard while the boat was docking at Cambridge, but he quickly swam to a motor boat which landed him. The patients were transferred from the dock by motors, carriages and wagons. The Doctors Orchestra of Baltimore accompanied the party and furnished music.

—*City Detention Hospital, Baltimore.*—One hundred patients were transferred from this hospital on May 21, to the Springfield State Hospital by the Supervisors of City Charities. It is expected to transfer a large number of negro patients to the Crownsville State Hospital in the near future.

—*Springfield State Hospital, Sykesville.*—The John Hubner Psychopathic Building was formally opened at this hospital June 9, 1915. It is a three-story and basement brick structure in the form of a maltese cross, and is equipped with laboratories, operating rooms, hydraulic department, continuous baths, etc. One wing is to be devoted to the administrative offices. Its cost was about $125,000, and is intended to accommodate acute cases. At the opening, addresses were made by Dr. Elmer E. Southard, Director of the Boston Psychopathic Hospital; Dr. Hugh H. Young, President of the Maryland State Lunacy Commission; Dr. Henry M. Hurd, Dr. Llewellys F. Barker, and Dr. Edward N. Brush, Superintendent of the Sheppard and Enoch Pratt Hospital. As a mark of appreciation of Mr. Hubner's 20 years service as a member of the board of managers, he was presented by his fellow members with a large, silver loving-cup.

—*Spring Grove State Hospital, Catonsville.*—On July 15, 1915, Charles Sdjveick, a Bohemian patient at this hospital, climbed to the top of the

150 foot smoke-stack and plunged down it. Death was caused by suffocation, as the patient was buried five feet in the soot which was at the bottom. He had been a patient for about two years, was demented, and showed no suicidal tendencies previously. It was an unusual form of suicide.

MASSACHUSETTS.—A campaign has been started to raise $150,000 for the endowment of a chair of psychiatry at the Harvard Medical School, with the idea that it will be a full time professorship.

By recent acts of the legislature, the Foxborough State Hospital has been made a state hospital for the insane, and the temporary care period has been extended from seven to ten days.

—*Grafton State Hospital, North Grafton.*—This institution consists of what was formerly called the Worcester Insane Asylum on Summer St., Worcester, and of the four colonies which are situated in North Grafton. During May there was a mild epidemic of typhoid fever the origin of which could not be traced. There were cases both at Worcester and at Grafton.

MINNESOTA.—A bill was introduced at the last legislature appropriating $25,000 for the establishment of a fourth state hospital, and directing the State Board of Control to acquire a suitable site and to submit plans at the next legislature.

MONTANA.—*Montana State Asylum, Warm Springs.*—A legislative grant of $80,000 will be used for the erection of a new modern kitchen and for a dormitory building to accommodate 60 women patients.

NEBRASKA.—*Hospital for Insane, Lincoln.*—An industrial building has been built at an expense of $40,000. The two lower floors are devoted entirely to industrial pursuits; the women occupying the first floor and the men occupying the basement. The third floor is used for an amusement hall.

The hydrotherapy equipment installed has been amplified and extended. Many very useful fixtures for the administration of water have been installed at the hospital.

The kitchen is being remodeled and a tile floor laid. An addition is under process of construction to the male division of the hospital. This will house about 84 patients in dormitory wards, will have a sleeping porch opening off each ward, and the first floor will be a congregate dining-room capable of seating 200 patients, There will be a shower bath room and barber shop combined, where all patients from the male division will be escorted to be bathed and shaved and supplied with clean clothing. The hospital received during the past biennial period 741 patients; a total of 1351 patients have been under treatment during the biennium.

The nurses' training school has affiliated with the Cook County Hospital of Chicago. All nurses are required to devote at least six months of the three years' training to work at that hospital. The work of the female nurse is being extended to the male side of the house. All women attendants are required to take the nurses' training course of three years. Male attendants are urged to do so. Dietetics is given to the training class by the department of Home Economics of the State University located at Lincoln.

The first council meeting of the heads of institutions of the state of Nebraska will be held at this hospital, October 27-28.

—*Norfolk State Hospital, Pondville.*—The legislature of 1915 appropriated $90,500 for additional buildings and appurtenances for this hospital. This will be utilized for the building, and the equipping of five cottages and a dining-room. When these buildings are completed the hospital will be able to care for 450 patients with necessary officers and employees. Additional land has been purchased during the past year and the total acreage now under control of the hospital for the care of inebriates is 1060 acres. The various cottages and workshops are being built over this area.

Particular attention is called to the extension of the out-patient department connected with this hospital; this department is an integral part of the institution, all the officers and workers in it being paid by the hospital. Two central offices are established throughout the state; it is proposed during the next year to establish secondary offices, in this way extending the services of the hospital to the different communities.

NEW HAMPSHIRE.—*New Hampshire State Hospital, Concord.*—The New Hampshire legislature granted an appropriation of $85,000 for completing a building to contain patients of the industrial class. This building, with the new addition, will house 424 patients, and is a complete unit in itself, having an administration section and kitchen department. The patients eat in an associate dining-room; the male patients work on the farm, in the industrial shop, and in various capacities. The women are employed in the wards of the building, make hosiery, do all the mending, all sorts of embroidery, basketry, and the like. An industrial teacher, who has charge of the industrial work of the hospital, resides in this building, and gives especial consideration to dementia precox cases, and those needing special direction.

The Board of Control, which was established by the legislature of 1913, proving unsatisfactory, was legislated out of office by the legislature of 1915, and in its place a board of ten trustees was established. Two trustees are assigned to each one of the five charitable and penal institutions of the state, and the entire board meet regularly at the State House. The board of ten trustees by the provisions of the act are to appoint a business manager at a salary of $4000 a year, and a purchasing agent at a salary of $3000 a year. By this provision the management of the state institutions returns in part to the old form of government by an unpaid board of trustees. The centralization of the business management of the various state institutions will be effected through the business manager and his purchasing agent.

It should be said that the reason the Board of Control management proved unsatisfactory in this state was because of the political animus that led to its creation. The spirit of the legislation creating the Board of Control really meant the introduction of politics into the management of state institutions. The attempt to mix politics and institutional management proved impracticable, and detrimental to the welfare of the institutions and wards entrusted to their care. The present legislation is an honest attempt to divorce politics from the administration of the state charitable and corrective institutions, and to secure business efficiency and central supervision with the least detriment to the best interests of the institutions themselves.

Early in August of the present year a fire took place in the lumber dry-room of the carpenter's shop, completely demolishing the roof and the upper floor of that building. In this same structure were located some of the industrial shops. The building being located near others containing patients, was a serious menace for awhile, but the fire was ultimately confined to that building itself by the Concord Fire Department. The trustees met promptly after the fire and authorized the fire-proofing of this entire building, the removal of the carpenter shop to some safer location, at a distance, and the use of the old carpenter shop for industrial shops for patients.

NEW JERSEY.—*New Jersey State Hospital at Morris Plains.*—An extensive study is being made of the value of neo-salvarsan, combined with bichloride of mercury, in the treatment of paresis by the intrathecal method.

A complete equipment for the establishment of a psychopathological laboratory has been purchased and plans have been made for a comparative study of the various intelligence tests now in vogue to determine the practicability of applying these tests in the differentiation of cases of dementia praecox, constitutional inferiority, and the higher forms of feeble-mindedness.

An appropriation was made to continue the eugenic research work for another year. The correlation of the research workers' report with the clinical findings has been a valuable adjunct in substantiating and differentiating some of the more complex psychoses. During the last year a family history and hereditary chart has been made out on each new admission.

A surgical room equipped with all the necessary apparatus for minor and major work has been completed in the men's department of the main building.

A contract has been let for the installation of two additional continuous baths in the women's department, and six continuous baths for the new hydrotherapeutic room in the men's department. This method of treatment has proven of special value in treating the agitated patients, and should, under careful observation and medical direction, be found valuable in the treatment of vascular complications.

Two stucco buildings with a capacity of 148 patients have been completed. The object of these two buildings is to serve as a partial temporary relief of the overcrowded condition of the hospital. Before these buildings were completed, the normal capacity of the hospital was 1600. At the present time there are 2623 patients under treatment.

Two glass pavilions for open air recreation have been completed. One pavilion, rather small in size, is located near the dormitory building. The other one is built on the spacious lawn in front of the main building, and is equipped with a stage, and other facilities, for holding afternoon entertainments, sociables, teas, lectures, masques and plays.

In the dormitory building, a large dining-room has been constructed and equipped with round tables, where the patients dine in small groups. Here the men patients who work out-doors are given an opportunity to enjoy the good fellowship of dining in small congenial groups.

A contract has been awarded for the installation of three drinking water purification plants. A small building will adjoin each of the three large reservoirs. Chlorine gas method of sterilizing the water will be the one used.

Plans have been drawn up for a pathological building. In the basement there will be a refrigerator, and a mortuary room which will be properly equipped for demonstrations and lectures. On the first floor a fully equipped bacteriological, pathological, and bio-chemical laboratory will be provided for. On this floor will be a museum adjoining the pathologist's and technician's offices. On the second floor provision has been made for the most modern photographic studio—to be equipped with the Cooper-Hewitt light, which brings out the finer details of the physiognomic expressions. Apparatus has been purchased for the taking of motion pictures, with the intention of making a study of the characteristic behavior of patients afflicted with certain psychoses. A room for making bromide enlargements and doing color photography will be completely equipped with the most modern accessories for this work. The micro-photographic apparatus at present owned will be brought up to a high standard of production.

An appropriation has been made for the removal of the dormer windows on the fourth floor, and the roof reconstructed to afford well lighted alcoves.

Plans and appropriations have been made for the construction of an extension to the industrial building. The industrial building was opened last October and was equipped with apparatus and supplies for manufacturing a great variety of hospital utilities. In equipping this building, attention was given to the fine arts and crafts, because of the special value of these pursuits in the treatment of certain psychoses. This part of the work was experimental, but the efforts have been crowned with excellent results. Patients, who were at first attracted by the elementary art and craft work, were eventually trained to produce commodities having special value for their usefulness in the institution. On the first floor the male patients have been engaged in printing, bookbinding, paper ruling, and other occupations allied with with this department. There is a carpenter shop in the industrial building completely equipped to do all kinds of sloyd work. The second floor of the building will be given over to the women patients, who will be engaged in all kinds of art and craft work. Twelve different looms for the manufacture of rag rugs, scrim curtains, toweling, and other fabrics, are at hand. The results obtained in this short time have been so encouraging that other floor space, equal to that of the industrial building, has been assigned for the extension of this work, where the patients will manufacture toweling, stockings, cocoa fiber mats, and laundry baskets; also rugs, which will be made from the discarded rags.

In order to develop the basket and willow furniture industry, a willow holt was established last spring. One hundred and ninety thousand willow shoots were planted. After a careful study of this subject it was determinded that the Lemley, the American Green, and the Welsh Willows were the best kind for manufacture of these commodities. The planting of the holt, and the cutting, peeling, splitting and weaving of the material into baskets and furniture will be done entirely by patients. Already the patients have manifested considerable interest in the progress of this industry.

A commission has been appointed by the Governor to look into the proposition of purchasing land for a new institution in the southern part of the state. The establishment of an institution on the colony plan is being carefully considered.

Special attention has been given to the amusement of the patients in this hospital. A baseball schedule was drawn up the early part of the spring to have two games a week played by the hospital team with other clubs from the various parts of the state. A large bandstand was constructed for the hospital musical organization, which numbers 18 pieces.

For several years an old type moving picture machine has been used in this hospital. Last month one of the latest types of machines (the Baird motion picture machine) was installed.

New York.—A bill known as the Sage bill passed the state senate, which legislated out of office the present State Hospital Commission, and provided for a single commissioner at a salary of $10,000 a year. The commission being a constitutional office could not be abolished, but the bill provided that it should have merely visitorial powers and have no hand in the management or supervision of state institutions. Fortunately, this bill was killed.

An amendment continuing the present commission as a constitutional body in control of the administrative and financial operations of the state hospitals for the insane, which was before the committee on charities of the constitutional convention, was reported favorably. In his report, Chairman Wadsworth pointed out that the hospital commission looks after 33.000 patients in 14 hospitals, having 6000 employees and 200 medical officers, at a cost of $8,500,000 a year. He stated that this is the largest medical and curative undertaking maintained by any government in the world, and that at the present rate of increase, when the next constituional convention meets, the number of insane in the state will have increased to 60,000, and the number of employees to 10,000.

The Knight bill was vetoed by Governor Whitman. This did away with examinations of insane convicts in penal institutions under control of the Commissioner of Correction in New York City by two examiners in lunacy, pending their removal to Matteawan, and substituted committal to the psychopathic ward of Bellevue hospital for observation. The Governor gave as his reasons for his veto, that such a bill would overcrowd the psychopathic ward and would react unfavorably on curable cases awaiting commitment to state hospitals.

Twelve cases of insanity among the 5000 sailors on the interned German vessels in New York harbor have been reported to the county medical authorities in Hoboken. It is said that 90 per cent of the interned crews suffer from anemia and are undernourished.

So many drug users have applied for relief since April 1, 1915, that the Finance Committee of the Board of Aldermen has approved an appropriation of $9000 for the care of "cured" drug users at the inebriate farm at Warwick. A tent colony which would care for 100 convalescents was established.

—*Long Island State Hospital, Brooklyn.*—Appropriations to the amount of $400,000 for additional accommodations for patients were granted by the last legislature and were approved by Governor Whitman.

—*Buffalo State Hospital, Buffalo.*—The training school held its graduation exercises on the afternoon of Thursday, June 24, and diplomas were given to two men and 18 women. The address was made by the Rev. Charles Jessup, of Buffalo, N. Y.

Since the last Summary there have been granted by the legislature out of many requests for appropriations two only, viz: $8000 for a new trunk line sewer to replace the one now in use, and $12,500 for new boilers. Many items asked of the last legislature were not obtained.

There has been completed recently a "water-softening apparatus" for the treatment of water in use in the laundry and boilers. It is expected to render further economy in both departments by reducing the amount of scaling in the boilers due to the hard water, and reducing soap consumption in the laundry for the same reason. It has a capacity of softening not less than 90,000 gallons of water per day. The contract price was $5960.

This hospital was pleased to receive along with sister hospitals in New York state, the following gratifying praise from the International Jury on Awards at the Panama-Pacific Exposition:

"Albany, N. Y., July 21. The grand prize for hygiene exhibits at the Panama-Pacific Exposition has been awarded to the New York State Hospital Commission. The honor was conferred by the International Jury on Awards, according to a telegram received to-day by the Commission from Dr. G. W. Mills, physician in charge of its exhibit. This is the highest possible award and the officials of the department interpret it as a recognition of the high standards maintained in the state's hospitals for the insane. The Commission's exhibit was arranged and installed by its statistician, Dr. Horatio M. Pollock, of Albany."

—*Manhattan State Hospital, Wards Island.*—The following work has been accomplished during the past six months:

The hot water lines have been renewed in the Verplanck and East buildings.

New copper bronze screens have been made for all the camps, also for the new nurses' home.

Contracts have been awarded and work begun on two new buildings, both of which are to be fire-proof. One is to accommodate 200 women patients of the disturbed class, and one is to serve as a reception building for the men's service. It will have accommodations for 150 patients. Both buildings are to have cement floors covered with battleship linoleum. The central part of each building will accommodate two physicians and their families.

The hydrotherapeutic equipment is to be located on the second floors over the dining-rooms, while the third floors, center and rear, are to accommodate employees. There will be six wards in the building for disturbed women, each ward containing three dormitories for ten patients, and four single rooms. There will also be examining rooms and stenographers' rooms in two wards of the lower floor.

The reception building for men is to face East River, overlooking Blackwell's Island, and is to be in the rear of the present main building for men. There are to be six wards in this building, each accommodating 25 patients. Examining rooms have been provided.

The nurses' home has been completed, and is now being furnished. This will accommodate 107, besides the principal and assistant-principal of the training school, and two women physicians. A kitchen and dining-room are now being installed in the eastern end of the basement. This building is to be used entirely for graduates and members of the training school, the object being to separate the nursing force from the attendant force, so as to eventually build up a superior ward supervision.

—*Binghamton State Hospital, Binghamton.*—The most important construction work at this hospital during the past six months has been the erection of the new building for women patients of the chronic class. This building will be fire-proof, and decidedly the best construction that has ever been undertaken at this institution; the walls will be of brick with light buff face brick for the interior walls and the floors will be of tile and concrete. Large enclosed verandas will practically be sun-rooms for the use of patients in each ward. It is expected this building will be finished and occupied early next summer.

The new stack for the power-plant has been completed and a new Stirling 500 h. p. boiler is being erected; plans are also being made for an additional 500 h. p. boiler and a permanent addition to the boiler-house to house the new equipment. Plans are also under consideration for the erection of a new coal trestle to take the place of the old one condemned by the Erie Railroad Co., as of insufficient strength to meet the requirements of heavy traffic. During the past summer a pasteurizing apparatus has been installed at the cold storage building and all milk used in the institution is now subjected to the pasteurizing process before being consumed as food; even the young calves at the dairy barn are supplied with pasteurized milk to guard against the development of tuberculosis.

Just at present the hospital is laboring under a serious disadvantage owing to cracks having appeared in the walls of the general assembly hall. The state architect has advised the closing of this hall until the building can be strengthened by means of a series of trusses, which will remove all danger. These repairs will probably be made in the course of another month.

During the summer the convalescent camp known as Pine Camp, which has been maintained throughout the summer season at the hospital farm for several years past, has been occupied by women patients, with highly satisfactory results. These patients not only enjoy the complete change of surroundings, but with few exceptions gain largely in body weight and in many instances show decided improvement mentally. The influence of the camp life is so marked that it is believed that a considerable number of patients start on the road to recovery while sojourning at the camp.

The Twenty-fourth Annual Field Day of the hospital was held on September 8, and for the twenty-fourth time fair weather prevailed throughout the day. A conspicuous feature of the exercises this year was the appearance of the patients' physical culture classes in a variety of dances and evolutions which they had learned in the course of their regular instruction.

On August 5, 1915, on an order issued by the State Hospital Commission, sixty men patients were transferred from the Central Islip State Hospital to this hospital to relieve the excessive crowding in the former institution. This hospital, although seriously crowded in all its wards, made room for this transfer, and has undertaken to accept an additional transfer of fifty women and twenty-five men which it is expected will be made in the near future. The certified capacity of the hospital is 2110 beds, but the proposed transfer will raise the patient population to somewhat more than 2500.

The hospital was honored by a visit from His Excellency, Charles S. Whitman, Governor of the State, on Wednesday, September 29, 1915. The Governor made a general inspection of a number of the buildings, during which he visited many wards, dining-rooms and kitchens.

—*Middletown State Homeopathic Hospital, Middletown.*—New dining-rooms and kitchen for the west group were occupied during the summer. Under the previous arrangement, 545 patients ate in two crowded dining-rooms, reached from the wards by descending one or two flights of stairs.

All patients now eat in dining-rooms accommodating about 50 patients each and on the same level as their wards. The old dining-rooms and kitchen have been altered to make two additional wards, with 100 beds. One of them, formerly the kitchen, has a tiled floor and is used for untidy, disturbed patients.

The farm house, a mile from the hospital, on the farm purchased and occupied last year, has been repaired and altered to accommodate 18 working patients and seven employees. It was occupied in September.

Contracts for equipment of the new power-house have been let.

—*Rochester State Hospital, Rochester.*—The plumbing in the main women's group is being repaired and replaced.

A new barn has been completed at one of the farm colonies.

Miss Anna Delmore has been appointed principal of the training school.

North Carolina.—*State Hospital for the Insane, Morganton.*—A new colony building was opened in May, giving an additional capacity for 62 patients. The present population is 1404.

—*State Hospital, Dix Hill, Raleigh.*—An appropriation of $35,000 was made by the last legislature for the erection of a receiving building which will be constructed in 1916. There has recently been built a granery, a smoke house, and a modern greenhouse.

The heating plant of the main building has recently been overhauled and enlarged.

Basketry, raffia work, rug weaving, and fancy work of various kinds are used as forms of occupation.

During July there was a general clean up in all departments of the hospital which resulted in greatly improved conditions. .

Pellagrins are now being treated by the dietarian method.

New devices have been installed for remodeling and strengthening old chairs.

On account of the lack of continuous bath tubs hydrotherapy is restricted to hot and cold packs, but it is hoped to have continuous bath tubs in the near future.

The staff has been enlarged by the employment of a pathologist, dentist, and two medical internes.

Ohio.—*Longview Hospital, Cincinnati.*—There has recently been completed and furnished a general assembly hall, seating 1100 patients with their attendants. It is equipped with a complete moving picture outfit and six complete sets of stage scenery. It also has a most modern switchboard, with dimmers and absolute control of all circuits from the stage, and an emergency circuit from the generating plant. Here are given "movies" once a week, dances, chapel services, and such theatrical performances as can be secured.

A building for disturbed male patients has just been completed and occupied. This building is of two stories, absolutely fire-proof, accommodates 150 to 200 patients and their attendants, and is arranged to separate the different classes of disturbed patients in their sleeping, day and dining quarters. It is heated by hot water, both direct and indirect, and ventilated by an automatic fan system. The cost with equipment was $125,000.

Plans are being prepared for a reception building for women to accommodate 250 patients and their attendants. This building will be a separate unit except as to current and water supply. Its estimated cost is $250,000.

PENNSYLVANIA.—*State Hospital for the Insane, Norristown.*—The last legislature made the following appropriations and work has been begun upon the changes and additions provided for: $30,000 for re-wiring the original buildings, sections, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, administration building, old chapel and kitchen buildings; $9000 for extending the high pressure fire main to outlying buildings from the new shops to the upper farm, hay storage barn, horse barn, piggery, etc.; $3500 for installing a new K. W. A. C. motor; $18,000 for placing insurance; $400 for installing ventilators; $600 for installing electric irons in the laundry; $42,000 for building a consumptive ward or cottage for women, and an incinerating plant for the consumptive cottages; $5000 for concrete refacing of reservoir; $3000 for furnishing trap rock to surface the roads; $3000 for building a new poultry yard and purchasing equipment for it; and $5000 for building and constructing fences to surround the hospital grounds.

Since the opening of the hydrotherapeutic plant a year and a half ago, 9280 treatments have been given with excellent results.

The new office building has been completed and contains the chief Resident Physician's offices, record rooms, stenographers' room, as well as a complete medical library.

The arts and crafts department has been enlarged, many new features have been added and many more patients have been sent to it.

The regular training school course has been slightly increased and new studies added. An attendant's course of three months has also been instituted, which is required of all who do not take the regular training course.

SOUTH CAROLINA.—*State Hospital for the Insane, Columbia.*—The colony of this hospital is called the State Park Hospital and accommodating 300 patients as it does, will somewhat relieve the overcrowding at this hospital. A central kitchen and dining-room is to be constructed here, and six white male wards are to be remodeled, the improvements costing $150,000.

SOUTH DAKOTA.—*Asylum for Insane Indians, Canton.*—A small bungalow for the use of the superintendent and his family is nearly completed.

TENNESSEE.—*Eastern Hospital for Insane, Bearden.*—There has been added to this institution a hospital for those patients who are chiefly confined to their beds. It is strictly fire-proof, the floors being of concrete, and all division walls of brick. It has two stories, and has beds for 20 patients. It is supplied with an operating room.

The last legislature abolished the boards of trustees of the three hospitals for the insane in this state and established a State Board of Control, which has charge of the charitable and penal institutions of the state.

VIRGINIA.—*Central State Hospital, Petersburg.*—A brick building, construction of which was begun last fall, 1914, has been completed and is occupied by 160 chronic female patients. This relieves considerably the crowded condition of the hospital, especially in the department for women.

A one-story cottage, to be constructed of wood, is being built in the woods about half a mile from the hospital. It is being made home-like in every particular, and will be used as a rest-house for convalescent and feeble men. The house has no window guards or door guards. It is rather unique in its arrangement, and in the midst of the woods will be an ideal place for the class of patients for which it is intended. It will accommodate about 25.

A modern water and filtration plant has been nearly completed, but the finishing has been deferred until the legislature next winter makes an additional appropriation for piping the water from the Appomattox River to the plant, a distance of about one mile. As soon as this plant is put in operation the hospital will have an inexhaustible supply of good water for drinking, sanitary and fire protection purposes.

A new and modern internal telephone system has been installed which connects all the wards, various colonies, and other buildings with the Administration Building.

Last fall a directress of industry and amusement was employed, and new life has been put into these activities at the hospital.

A conference of medical officers of the Virginia hospitals for the insane and the colony for epileptics, met here July 19 and 20. Dr. J. S. De Jarnette, Superintendent of the Western State Hospital at Staunton, Virginia, read a paper on "Syphilis as a Cause of Insanity." Dr. H. C. Henry, first assistant at the Central State Hospital, read a paper on "Amnesia and its Significance in Certain Criminal Cases." Following the discussion of these papers, a number of interesting cases, especially from the criminal department, were exhibited and discussed by the members of the conference.

WEST VIRGINIA.—*Spencer State Hospital, Spencer.*—During the past six months a great many improvements have been made at this institution. Six sun-rooms have been completed, each measuring 20 x 45 feet giving additional floor space of 5400 feet. These rooms are constructed with reinforced concrete floors and U. S. steel sash so making them fire-proof. There are 5400 window panes used in the ends of these rooms, one-half of which are in ventilators.

A concrete root cellar 20 x 50 feet has been constructed which has a paring room and cannery above it. The floor of this room is made of reinforced concrete, and the room is exceptionally well lighted and well adapted for the purposes for which it was constructed.

A four inch water line has been placed in the rear of all the buildings with fire hydrants attached to it, completing a system of fire hydrants around all of the buildings.

A non-climbable fence has been erected around the lake, the banks of which have been graded for sodding.

Boulevard lights have been placed along the concrete roadway which leads to the town of Spencer, and 200 Norway maple trees have been purchased to plant along this roadway and in other parts of the grounds.

Considerable paving with concrete has been done about the new barn, and about 500 feet of concrete walk have been laid.

All woodwork has been removed from the serving and dishwashing rooms in the congregate dining hall and concrete has replaced it.

Reinforced concrete bridges have been erected from the administration building to the congregate dining hall, and from the congregate dining hall to the new paring room and cannery.

Many other minor improvements have been made.

The yield from the farm has been greater this year than ever before in the history of the hospital.

Another physician has been added to the staff and arrangements have been made for the employment of a superintendent of nurses who will have charge of the training school.

Especial attention is being paid to diversional occupation in its various forms.

CANADA.—*Protestant Hospital for the Insane, Montreal.*—Owing to the generosity of a friend of the hospital, who has offered to defray the cost of construction, plans for a nurses' home have been prepared and it is expected the work on this much needed building will be started either this fall or early in the spring. It will be of fire-proof materials, modern in every particular, and will accommodate about 100 nurses, 50 of each sex.

The construction is now under way of a new piggery, the interior to be built of concrete and iron-work. The latest ideas in arrangement have been embodied in the plans of the new building, which will have a capacity for 80 hogs.

Appointments, Resignations, Etc.

ALLEN, DR. EDWARD B., appointed Assistant Physician at Danvers State Hospital at Hathorne, Mass.

ALTVATER, DR EDWARD GARRET, formerly Assistant Physician at Spring Grove Hospital for the Insane at Catonsville, Md., died in the University Hospital, Baltimore, Md., May 2, 1915, one day after an operation for appendicitis, aged 30.

ASPER, DR. BURT J., Assistant Physician at Sheppard and Enoch Pratt Hospital at Towson, Md., resigned August 31, 1915, to enter private practice in Asper, Pa.

BABCOCK, DR. J. WOODS, formerly Superintendent of State Hospital for the Insane at Columbia, S. C., appointed Professor of Psychiatry in the Medical College of the State of South Carolina at Charleston.

BANCROFT, DR. CHARLES P., Medical Superintendent of New Hampshire State Hospital at Concord, resumed his position May 17, 1915.

BASS, DR. HARRY, appointed Third Assistant Physician at Augusta State Hospital at Augusta, Maine.

BECKER, MRS. TRACY C., for thirteen years a Manager of Buffalo State Hospital at Buffalo, N. Y., died June 6, 1915, a few days after receiving a reappointment for a term of seven years from Governor Whitman.

BENTON, DR. FRED G, reappointed Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., May 1, 1915.

BERKLEY, DR. HENRY J., appointed Member of the State Lunacy Commission of Maryland.

BLAKE, DR. JOHN D., of the State Lunacy Commission of Maryland, term expired.

BLUNT, COL. STANHOPE E., Trustee of Monson State Hospital at Monson, Mass., resigned.

BRAYSHAW, DR. THOMAS H., of the State Lunacy Commission of Maryland, term expired.

BRUSH, DR. NATHANIEL H., Assistant Physician at Henry Phipps Psychiatric Clinic at Baltimore, Md., term expired September 1, 1915.

CARUTHERS, DR. FREDERICK DUVALL, formerly Assistant Physician at Spring Grove Hospital at Catonsville, Md., died at his home July 27, 1915.

CHASE, MR. AMOS B., appointed Trustee at Worcester State Hospital at Worcester, Mass., April, 1915.

CLIFFORD, DR. ERNEST J., Assistant Physician at Taunton State Hospital at Taunton, Mass., resigned May, 1915.

COGAN, MRS. MARY E., appointed Trustee of State Infirmary and State Farm at Tewksbury, Mass.

COHOON, DR. ELISHA, Assistant Physician at State Hospital for the Insane at Howard, R. I., appointed Administrator at Psychopathic Department of the Boston State Hospital at Boston, Mass.

COOKE, DR. EDWARD P., formerly Assistant Superintendent of Athens State Hospital at Athens, Ohio, died at his home in Barlow, Ohio, April 24, 1915, from arteriosclerosis, aged 58.

COPPEDGE, DR. THOMAS O., Assistant Physician at State Hospital at Raleigh, N. C., resigned.

CULLINAN, DR. JOHN, appointed Second Assistant Physician at Eastern Hospital for Insane at Bearden, Tenn.

DAVIS, DR. HAIM I., Superintendent of Cook County Psychopathic Hospital at Dunning, Ill., resigned April 19, 1915, and appointed Consulting Physician.

DAVIS, DR. JOHN C., appointed Assistant Physician at State Hospital for Nervous Diseases at Little Rock, Ark.

DEWSON, MR. GEORGE B., Trustee of Westborough State Hospital at Westborough, Mass., resigned.

Dolan, Mr. Thomas F., appointed Trustee of Westborough State Hospital at Westborough, Mass.

Donnelly, Mr. Edward C., appointed Trustee of Foxborough State Hospital at Foxborough, Mass.

Drake, Dr. Frank I., appointed Superintendent of Wisconsin State Hospital for the Insane at Mendota.

Durfee, Miss Eliza C., Trustee of Westborough State Hospital at Westborough, Mass., resigned.

Eckhardt, Dr. J. C., Fourth Assistant Physician at Central State Hospital at Petersburg, Va., resigned.

Ely, Mr. Lyman A., Trustee of Worcester State Hospital at Worcester, Mass., term expired.

Emerson, Dr. Clarence, Assistant Physician at Hospital for the Insane at Lincoln, Neb., resigned to enter private practice in Lincoln.

Faxon, Dr. Dora, appointed Second Assistant Physician at Foxborough State Hospital at Foxborough, Mass., May, 1915.

Fell, Dr. Egbert W., appointed First Assistant Physician at Psychopathic Department of Boston State Hospital at Boston, Mass., April, 1915, for one month.

Fletcher, Dr. George B., Assistant Physician at State Hospital for Nervous Diseases at Little Rock, Ark., resigned.

Fower, Dr. Lucy B., appointed to succeed Dr. Cora B. Murdoch at Northern Indiana Hospital for Insane at Logansport, Ind.

Fulmer, Dr. Joseph C., Assistant Physician at Danvers State Hospital at Hathorne, Mass., resigned.

Garvin, Dr. William C., Senior Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., resigned July 10, 1915.

Gibson, Dr. Edward T., Junior Assistant Physician at Psychopathic Department of Boston State Hospital at Boston, Mass., resigned May 19, 1915.

Gleason, Dr. Willis W., Assistant Physician at Westborough State Hospital at Westborough, Mass., resigned.

Gorst, Dr. Charles, Superintendent of State Hospital for the Insane at Mendota, Wis., resigned.

Gosline, Dr. Harold I., of Danvers State Hospital appointed Pathologist at Worcester State Hospital at Worcester, Mass., July 14, 1915.

Gregory, Dr. Hugh S., Medical Interne at St. Lawrence State Hospital at Ogdensburg, N. Y., promoted to Assistant Physician, Pathologist, May 28, 1915.

Griffiths, Dr. D. G., appointed Assistant Physician at Hospital for the Insane at Lincoln, Neb.

Hall, Dr. Roscoe W., Assistant Physician at Henry Phipps Psychiatric Clinic at Baltimore, Md., promoted to be Resident Physician.

Hanson, Dr. William T., Medical Inspector of Massachusetts State Board of Insanity, appointed Physician in Charge of the Mental Wards of State Infirmary at Tewksbury, Mass., May 20, 1915.

Harrel, Dr. Jerome L, appointed Superintendent of Chester State Hospital at Menard, Ill.

Harris, Dr. Ada F., appointed Assistant Physician at Grafton State Hospital at Grafton, Mass.

Harris, Dr. George K., Superintendent of Chester State Hospital at Menard, Ill., resigned.

Harrison, Dr. Forest M., Junior Assistant Physician at Government Hospital for the Insane at Washington, D. C., promoted to Assistant Physician May 1, 1915, and resigned September 1, 1915.

Haviland, Dr. C. Floyd, First Assistant Physician at Kings Park State Hospital at Kings Park, N. Y., appointed Superintendent at Connecticut Hospital for the Insane at Middletown, July 10, 1915.

Henderson, Dr. David K., Resident Physician at Henry Phipps Psychiatric Clinic at Baltimore, Md., appointed Assistant Physician at Royal Glasgow Asylum, Scotland, June 1, 1915.

HILL, DR. CHARLES B., appointed Superintendent of State Hospital for the Insane at Supply, Okla.

HISCOCK, DR. R. C., formerly of the British West African Medical Service, appointed Second Assistant Physician at Verdun Hospital at Montreal, May 3, 1915, and promoted to be First Assistant Physician July 22, 1915.

HOCKING, DR. GEORGE H., appointed Member of the State Lunacy Commission of Maryland.

HOLLIDAY, DR. JOEL R., appointed a member of State Board of Sanity of Oklahoma.

HOWELL, DR. WILLIAM L., Interne at Buffalo State Hospital at Buffalo, N. Y., resigned.

HURD, DR. RALPH A., appointed Assistant Physician at Connecticut Hospital for the Insane at Middletown, May 22, 1915.

JACOBS, DR. WILHELMINA, Assistant Physician at Jacksonville State Hospital at Jacksonville, Ill., transferred to Chicago State Hospital at Dunning, Ill.

JIENCKE, DR. CARL, appointed Dentist at State Hospital for the Insane at Norristown, Pa.

KACZKOWSKI, DR. JOSEPH, appointed Medical Interne at Chicago State Hospital at Dunning, Ill.

KERSHAW, DR., Appointed Assistant Physician at Chicago State Hospital at Dunning, Ill.

LONG, DR. ROSS D., a member of State Board of Sanity of Oklahoma, given an indefinite leave of absence and has sailed for Europe.

MCCUAIG, DR. JOHN E., formerly Assistant Physician at Danville State Hospital at Danville, Pa., died at his home in Erie, Pa., from uremia, May 18, 1915, aged 47.

MCFADDEN, DR. JAMES F., Assistant Physician at Psychopathic Department of Boston State Hospital at Boston, Mass., appointed Assistant Physician at Foxborough State Hospital at Foxborough, Mass., April, 1915.

MCPHERSON, DR. GEORGE E., Assistant Physician at Foxborough State Hospital at Foxborough, Mass., resigned May, 1915.

MACDONALD, DR. THOMAS D., appointed Associated Physician at Dr. MacDonald's House, September 1, 1915.

MEAD, DR. LEONARD C., Superintendent of State Hospital for the Insane at Yankton, S. D., recently completed twenty-five years of service in that position.

MEEKER, DR. JAY E., appointed Medical Interne at St. Lawrence State Hospital at Ogdensburg, N. Y., June 1, 1915.

MILLIGAN, DR. JAMES W., appointed Superintendent of Southeastern Indiana State Hospital at Madison.

MIZENER, DR. MARK, Assistant Physician at Westborough State Hospital at Westborough, Mass., resigned.

MOORE, DR. WILLIAM P., appointed Interne at State Hospital for Nervous Diseases at Little Rock, Ark.

MOULTON, DR. ALBERT ROSCOE, formerly Assistant Physician at Worcester State Hospital, Mass., and Assistant Physician at Pennsylvania Hospital for the Insane at Philadelphia, September, 1891, to June 1, 1914, died at his home in West Philadelphia, August 16, 1915.

MURDOCH, DR. CORA B., resigned from service Northern Indiana Hospital for Insane at Logansport, September 20, 1915.

MURPHY, DR. DENNIS J., Junior Assistant Physician at Government Hospital for the Insane at Washington, D. C., promoted to Assistant Physician May 1, 1915.

MURPHY, DR. PATRICK, Interne at State Hospital for Nervous Diseases at Little Rock, Ark., resigned.

MUTCHLER, DR. H. RAYMOND, appointed Assistant Physician at New Jersey State Hospital at Morris Plains, February 15, 1915.

NACK, DR. JOSEPH, Medical Interne at Government Hospital for the Insane at Washington, D. C., promoted to Junior Assistant Physician May 1, 1915.

NASE, DR. PHILLIP, Second Assistant Physician at Verdun Hospital at Montreal, appointed First Assistant Physician May 3, 1915, and resigned July 21, 1915, to be Assistant Superintendent of Battleford Hospital for Insane at Battleford, Saskatchewan.

Nenell, Dr. Everett G., Superintendent of State Hospital for the Insane at Supply, Oklahoma, resigned.

Oakley, Dr. Geraldine, Assistant Physician at Northampton State Hospital at Northampton, Mass., appointed Superintendent of Woman's College Hospital at Toronto, Canada, July 31, 1915.

O'Brien, Mrs. Emily Y., appointed Trustee of Westborough State Hospital at Westborough, Mass.

O'Neil, Dr. Dillon G., appointed Assistant Physician at Anna State Hospital at Anna, Ill.

Perry, Dr. John H., Assistant Superintendent of Longview Hospital at Cincinnati, Ohio, transferred to Lima State Hospital at Lima, Ohio.

Poynter, Dr. D'Orr, appointed Superintendent of Blackfoot Insane Hospital at Blackfoot, Idaho.

Preston, Dr. Waldo E., appointed Medical Interne at Government Hospital for the Insane at Washington, D. C., May 15, 1915, and resigned September 1, 1915.

Pringle, Dr. Cyrus F., appointed Interne at Buffalo State Hospital at Buffalo, N. Y., July 15, 1915.

Raymond, Rev. A. V. V., formerly President of Union College at Schenectady, N. Y., and President of the Board of Managers of the Buffalo State Hospital at Buffalo, N. Y., resigned June 2, 1915.

Read, Dr. Charles F., Assistant Superintendent at Chicago State Hospital at Dunning, Ill., transferred to Peoria State Hospital at Peoria, Ill., March 1, 1915.

Rice, Dr. William F., Medical Interne at Government Hospital for the Insane at Washington, D. C., promoted to Junior Assistant Physician April 1, 1915, and resigned July 17, 1915.

Robinson, Dr. H. V., First Assistant Physician at Verdun Hospital at Montreal, resigned May 2, 1915, to take up special work prior to entering general practice in Montreal.

Rogers, Dr. O. B., Second Assistant Physician at Eastern Hospital for Insane at Bearden, Tenn., resigned.

Sanborn, Miss Barbara W., appointed Social Service Worker at Westborough State Hospital at Westborough, Mass.

Sandige, Dr. R. P., for the past year Interne at Ellis Island, New York, appointed Fourth Assistant Physician at Central State Hospital at Petersburg, Va.

Sandy, Dr. William C., Assistant Physician at Kings Park State Hospital at Kings Park, N. Y., appointed Medical Director at State Hospital for the Insane at Columbia, S. C.

Sartwell, Dr. Ransom H., appointed Assistant Physician at State Hospital for the Insane at Howard, R. I.

Schaefer, Hon. Philip G., elected President of Board of Managers of Buffalo State Hospital at Buffalo, N. Y.

Scheetz, Dr. Mildred E., Medical Interne at Government Hospital for the Insane at Washington, D. C., promoted to Junior Assistant Physician May 1, 1915.

Schmidt, Dr. Walter, Assistant Physician at New Jersey State Hospital at Morris Plains, appointed Assistant Physician at Psychiatric Clinic at Bellevue Hospital, New York.

Schwan, Dr. Carl, appointed Medical Interne at Rochester State Hospital at Rochester, N. Y.

Scott, Dr. Ruby, appointed Second Assistant Resident Physician at Henry Phipps Psychiatric Clinic at Baltimore, Md.

Seiwell, Dr. Harry S., Medical Director at Alton State Hospital at Alton, Ill., transferred to Watertown State Hospital at Watertown, Ill.

Shields, Mr. George C., Trustee of Foxborough State Hospital at Foxborough, Mass., resigned.

Siskind, Dr. Abraham, Medical Interne at Manhattan State Hospital at Wards Island, N. Y., promoted to Assistant Physician July 11, 1915.

Slocum, Dr. J. S., Resident Physician at Dr. MacDonald's House, resigned September 1, 1915.

Smith, Dr. Alice, appointed Medical Interne at Chicago State Hospital at Dunning, Ill., and later transferred to Jacksonville State Hospital at Jacksonville, Ill.

Smith, Dr. H. J., Assistant Superintendent at Peoria State Hospital at Peoria, Ill., transferred to Chicago State Hospital at Dunning, Ill., March 1, 1915.

Smith, Mrs. Helen R., Trustee of State Infirmary and State Farm at Tewksbury, Mass.

Stoerzer, Dr. Charles E., Special Medical Attendant at Manhattan State Hospital at Wards Island, N Y., resigned April 30, 1915.

Strait, Dr. Thomas J., Superintendent of State Hospital for the Insane at Charleston, S. C., retired.

Stubblefield, Dr. Frank A., Assistant Physician at Jacksonville State Hospital at Jacksonville, Ill., appointed Medical Director at Alton State Hospital at Alton, Ill.

Sturgis, Dr. Karl B., Second Assistant Physician at Augusta State Hospital at Augusta, Maine, resigned to enter private practice in Augusta.

Thompson, Dr. Charles B., appointed First Assistant Resident Physician at Henry Phipps Psychiatric Clinic at Baltimore, Md., June 1, 1915.

Thompson, Dr. James M., Assistant Physician at Foxborough State Hospital at Foxborough, Mass.,, resigned April, 1915.

Thompson, Dr. John J., appointed Assistant Physician at Taunton State Hospital at Taunton, Mass.

Tilton, Dr. Asher J., appointed Dentist at State Hospital for the Insane at Norristown, Pa.

Tryon, Dr. Geneva, appointed Assistant Physician at Boston State Hospital at Boston, Mass., April, 1915, for six months.

Vorbau, Dr. Wilhelm H., Assistant Physician at Athens State Hospital at Athens, Ohio, transferred to Lima State Hospital at Lima, Ohio.

Wade, Dr. J. Percy, Superintendent of Spring Grove Hospital at Catonsville, Md., has completed twenty-three years service in that institution.

Waterman, Dr. Chester, Senior Assistant Physician at Willard State Hospital at Willard, N. Y., transferred to Manhattan State Hospital at Wards Island, N. Y., August 20, 1915.

Wellington, Dr. Anna C., Assistant Physician at Psychopathic Department of Boston State Hospital at Boston, Mass., returned from leave of absence May 26, 1915.

Weltner, Dr. Fred Paul, appointed Assistant Physician at Sheppard and Enoch Pratt Hospital at Towson, Md., September 15, 1915.

Westcott, Dr. Niles, Assistant Physician at State Hospital for the Insane at Howard R. I., resigned to enter private practice in Laurel, Del.

Wilcox, Miss Mabel, appointed Manager of Buffalo State Hospital at Buffalo, N. Y., July 22, 1915.

Wildman, Dr. H. Valentine, Jr., Medical Interne at Manhattan State Hospital at Wards Island, N. Y., promoted to Assistant Physician April 16, 1915, and resigned August 17, 1915.

Williams, Dr. C. Frederick, of the State Board of Regents of South Carolina, appointed Superintendent of State Hospital for the Insane at Charleston, S. C.

Wilson, Dr. Anita A., Junior Assistant Physician at Government Hospital for the Insane at Washington, D. C., promoted to Assistant Physician May 1, 1915.

Worthing, Dr. Harry J., Medical Interne at St. Lawrence State Hospital at Ogdensburg, N. Y., promoted to Assistant Physician May 25, 1915.

Wright, Dr. Arthur C., appointed Second Assistant Physician at Augusta State Hospital at Augusta, Me.

Wright, Miss Helen M., Social Worker at Psychopathic Department of Boston State Hospital at Boston, Mass., resigned July 31, 1915.

Yeretzian, Dr. Kachig H., Assistant Physician at Columbus State Hospital at Columbus, Ohio, resigned to enter private practice in Columbus.

Zuck, Dr. Arthur C., Assistant Physician at Taunton State Hospital at Taunton, Mass., resigned May, 1915.

VOL. LXXII. JANUARY, 1916. No. 3

AMERICAN
JOURNAL OF INSANITY

A SURVEY OF DEFECTIVE DELINQUENTS UNDER THE CARE OF THE MASSACHUSETTS STATE BOARD OF INSANITY.*†

BY A. WARREN STEARNS, M. D., BOSTON, MASS.

For many years the relation between mental disease, especially mental defect, and crime has been recognized, and attempts to make use of our knowledge of this relation have been many, but for the most part unsuccessful. In Massachusetts Dr. Walter E. Fernald has long urged action in this matter, and for a concise statement of the problem we can do no better than to quote him:

> To a trained observer the class of boys and girls in truant schools and in industrial and reform schools includes a rather large proportion of defectives where the intellectual defect is relatively slight and is overshadowed by the moral deficiency. The history of a case of this sort during infancy and early childhood, from a medical and psychological standpoint, is that of an abnormal child. While they generally present definite physical evidences of degeneracy, they are physically superior to the ordinary imbecile. Their school work is not equal to that of normal boys of the same age, but they are often abnormally bright in certain directions. They may be idle, thievish, cruel to animals or smaller children, wantonly and senselessly destructive and lawless generally. They are often precocious sexually and after puberty almost always show marked sexual delinquency or perversion. They are often wonderfully shrewd and crafty in carrying out their plans for mischief. They instinctively seek low company and quickly learn everything that is bad. They have little or no fear of possible consequences in the way of punishment. They acquire a certain spurious

---

*Being State Board of Insanity Contribution No. 44 (1915.10). The previous State Board of Insanity Contribution (1915.9) was by A. Warren Stearns, entitled "Note on Recent Extension of Out-Patient Work in Massachusetts Hospitals for the Insane," published in the Boston Medical and Surgical Journal, Vol. CLXXII, No. 15, pp. 553-555 (April 15, 1915).

†Read at the seventy-first annual meeting of the American Medico-Psychological Association, Old Point Comfort, Va., May 11-14, 1915.

keenness and brightness and possess a fund of general information which is very deceiving on first acquaintance. They are apt to be accomplished liars. The great army of police court chronic criminals, vagrants and low prostitutes is largely recruited from this class of "moral imbeciles." These children are not simply bad and incorrigible, but they are irresponsible by reason of the underlying mental defect. The mental defect and the moral lack are alike the visible effects of incurable affection of the cerebral cortex. No method of training or discipline can fit them to become safe or desirable members of society. They cannot be "placed out" without great moral risk to innocent people. These cases should be recognized at an early age, before they have acquired facility in actual crime, and permanently taken out of the community to be trained to habits of industry and as far as possible contribute to their own support under direction and supervision. They are not influenced by the simple system of rewards and deprivations which easily serves to control the conduct of the feeble-minded. They do not class well with the rather simple types of ordinary imbecility. When the actual number of this dangerously potential class of moral imbeciles is fully realized, they will be given lifelong care and supervision in special institutions combining the educational and developmental methods of a school for the feeble-minded and the industry and security of a modern penal institution. Such provision would only be a rational extension of the principle of the indeterminate sentence, and, if safeguarded by careful and repeated expert examination and observation, could do no injustice and would greatly diminish crime in the immediate future.

Also:

The patients described vary greatly in intelligence and in the amount of definite knowledge which they have acquired, but they greatly resemble each other in their childish tastes, excessive vanity, unreliability, aggressive boastful egotism, selfishness, moral insensibility, fondness for malicious mischief and trouble-making, indolence, willingness to run great risks for the sake of some small gain, untruthfulness, lack of shame and remorse, lack of sympathy, etc.

The cases described fairly represent the criminal imbecile type. I have no doubt as to the actual imbecility and the resulting moral irresponsibility of every one of these cases. As a group, the female cases especially well illustrate the so-called "high-grade imbecile." In fact, the physical and psychical stigmata exhibited by this group of imbeciles, selected because of their criminal tendencies and acts, are merely the usual signs and symptoms found in the ordinary case of imbecility, modified only in *degree* and not in *kind*.

This class of borderline cases with criminal tendencies now constitutes a troublesome and puzzling factor in our institutions for the feeble-minded. They are often malicious, deceitful, and inciters of mischief and insubordination. They have a wonderful power of suggestion over their simple-minded fellow-patients. They are generally committed to the institution against the wishes of their parents. The efforts of their friends to obtain their release are constant and perplexing. If a case of this description is taken before the Supreme Court on a writ of habeas corpus, it is more than likely that the patient will be released. Indeed, it is not difficult to find reputable medical men who would testify that the case "is by no means a fool," and that he ought not to be deprived of his liberty. It is evident that clinical types and shadings of mental deficiency have become familiar to the alienist which have not yet been so definitely formulated and classified as to be readily recognized by the profession generally. It is equally true that the legal definitions and precedents pertaining to ordinary cases of imbecility are inadequate when applied to these high-grade imbeciles. We have, therefore, to face the anomalous fact that it is easy to have a class of patients committed to our institutions who are promptly discharged by the higher courts because these lesser types of deficiency have neither been adequately formulated medically nor recognized legally.[2]

More recently the term "defective delinquent" has been applied to this group, and we find in 1911, in the report of the commission to investigate the question of the increase of criminals, mental defectives, epileptics and degenerates, under the heading "Defective Delinquents," the following:

> There is urgent need of special legal recognition of the class of defective delinquents, and of suitable provision for their proper commitment and permanent detention. The law should recognize that such a class exists by making a distinctive legal definition. There should be a definite form of procedure for the commitment of the defective delinquent similar to that used for the commitment of the insane. This procedure should be equally applicable to cases in the courts or in the community, to youthful and adult criminal defectives, and to cases which develop in the institutions for the feeble-minded.
>
> They should be committed to permanent care and custody, under special institutional conditions combining the educational and developmental methods of a school for the feeble-minded with the industry and security of a modern penal institution. Under proper conditions, perhaps in a farm colony, the directed labor of these persons would materially reduce the cost of their support. Their immoral and criminal depredations would be prevented, the cost of repeated arrests, trials and commitments would be avoided, and they would not be able to bring helpless children into the world. Provision should be made for the safeguarding of the rights of the individual by periodical expert examination and observation, and by the possibility of ultimate release under parole.

This latter report was instrumental in the passage of a law in 1911 designed to provide for the care of this class. (Law appended.) This law has not been utilized, unfortunately, and still awaits the measures necessary to put it in action.

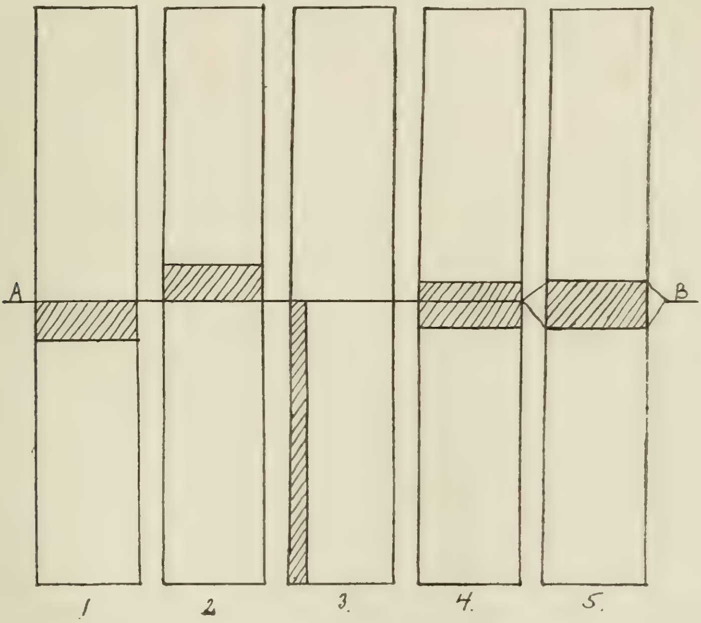
Public sentiment has been aroused, however, and the frequent attempts to get such patients into the schools for the feeble-minded and hospitals for the insane, and the many complaints from superintendents when they were by chance admitted, led the Massachusetts Board of Insanity to make a survey of all such patients in the hospitals under their control, to see, first, how many such patients were under their control, and, secondly, to see what measures could be undertaken to assist in the solution of this problem.

The term was found to be in quite general use, though rarely as an official diagnosis. "Moral imbecile," "psychopathic inferiority," "constitutional inferiority," as well as "imbecile" and "feeble-minded," were used. The following table shows the number of feeble-minded without a definite psychosis in the hospitals for the insane, and also those of this number who come within the defective delinquent group.

	Feeble-minded			Defective Delinquents			Remarks
Hospital	M.	F.	T.	M.	F.	T.	
Worcester	16	20	36	..	4	4	
Taunton	33	16	49	..	8	8	
Northampton	53	35	88	3	5	8	
Danvers	26	25	51	1	5	6	
Westborough	18	24	42	2	6	8	
Boston	22	16	38	..	..	..	
Grafton	5	10	15	..	6	6	
Medfield	18	19	37	..	8	8	
Gardner Colony	27	24	51	1	8	9	
Tewksbury Infirmary	16	40	56	..	6	6	
Bridgewater	50	..	50	13	..	13	Males only
Monson	..	..	..	..	..	..	Epileptics only
Foxborough	3	4	7	2	4	6	
	287	233	520	22	60	82	Totals in hospitals for insane.
Mass. School for the Feeble-minded				10	19	29	Entire population feeble-minded.
Wrentham State School				20	27	47	
Grand Totals				52	106	158	

Some difficulty was experienced in deciding, in any given case, whether to apply the term "defective delinquent," though the group itself stands out quite clearly. The following chart illustrates the different ways in which the term is used, taking the intellectual level alone as a standard.

Fig. 1 represents the most common conception. *A—B* represents the dividing line between an intelligence which is called normal and one called feeble-minded. The shaded portion represents a small group of morons who have emotional and volitional instability and criminal tendencies.



Charts Showing Position of Defective Delinquents in Intellectual Scale. *A—B* Divides Normal and Feeble-minded. Shaded Portions Represent Different Concepts of the Defective Delinquent.

Next in frequency is the concept represented by Fig. 2. *A—B* has the same significance as in Fig. 1. Then the shaded portion represents a group just above the feeble-minded grade, but akin to them, and showing marked criminal traits. This corresponds with the definition given by Dr. Guy G. Fernald: "To explicitly define the class we may regard as within the group of defective delinquents one whose mentality is so imperfectly developed that he is unable to support himself honestly, and whose acts repeatedly conflict with established social and legal requirements. Above the maximum limit of this group are those who are mentally competent for self-support and below its minimum limit are morons, imbeciles of institution grade and idiots. In other words, the defective delinquent is one who is smart enough to get into trouble but is not smart enough to keep out of it."[3]

Fig. 3 represents a less frequent use. Here it is applied to any grade of feeble-minded patient who shows criminal tendencies.

As has been said before, though the group itself seems fairly clear-cut, it is often quite difficult to decide in a given case; and the writer feels that, regardless of theoretical considerations, usage will include a group overlapping the lower end of normal and the upper end of the feeble-minded, but having a characteristic antisocial attitude (Fig. 4). Here the old division of the feeble-minded into restless and stupid types applies, for some are antisocial because of restless activity, others because of indifferent following of what appears to be the easy way. Some consider the group to be suspended midway between normal and feeble-minded, as in Fig. 5.

A few figures will perhaps describe the group to best advantage. Since, generally speaking, being a moron has been a criterion upon which to base the diagnosis, practically all fall within this group. Of the 158 defective delinquents, 106 were females and 52 were males. This difference is probably explained by the large number of males in prisons. Of the 22 male defective delinquents in the hospitals, 13 are in the Hospital for the Criminal Insane at Bridgewater, so that as far as hospitals for the insane are concerned, females are the chief problem, there being 60 of these.

The typical life history of these individuals is one succession of contact with penal and social agencies. Of the 158 cases, 43 or 27.2 per cent. have previously been in some penal institution; 79 or 50 per cent. have been in some hospital for the insane or feeble-minded (insane, 57; feeble-minded, 22); 23 or 14.5 per cent. have been in charge of some private charitable organization; and 12 or 7.6 per cent. have been wards of the State Board of Charity.

As for their delinquencies, it is of course impossible to record every anti-social act, yet the following are given as most prominent in the records, in order of frequency:

Sex offenders	84
Uncontrollable temper	57
Stealing	53
Illegitimate child	29
Runaway	15
Venereal disease	13
Alcoholic	6
Murder	6
Setting fire	4
Assault and battery	3
Morphine	1
Miscellaneous, such as unruly, dishonest, truancy, stubborn, profane, noisy, troublesome, quarrelsome, rebellious, tramp, violent, breaking windows, etc.	25

It will be seen that a good many of these descriptive terms apply to reaction to hospital environment, and that many are "criminals who have committed no crime."[2]

Obviously these individuals are a menace to the community and require more or less permanent institutional care. They do not get along well in the prisons or in the schools for the feeble-minded, and at present are more comfortable in the hospitals for the insane. This is probably due to the fact that they can be widely separated, also that they feel their superiority there, make friends with nurses, have little compulsory work and no discipline. It seems that the farther they get from prison methods and discipline, the more comfortable is their condition. This has made the ordinary prison care notably unsuccessful with this class of cases.

On the other hand, they easily escape from insane hospitals, they do not learn a trade or other work which makes them useful, and they are out of place with psychotic patients. In the schools for the feeble-minded they are a disturbing factor. They cannot be held without escape, they are too old for educative school measures, and are a source of physical and moral danger to ordinary feeble-minded patients.

All of these facts speak for a segregation of this type, and the question arises as to who should take up the burden, at present inadequately cared for by prisons, schools for the feeble-minded and insane hospitals. There is no doubt that the prisons should provide for such cases, and the appended law seems adequate, could it but be put in operation. The abundant reasons for the passage of this law justify active steps on the part of prisons to care for those cases whose criminal life overshadows their mental defect.

Next, though they are undoubtedly out of place in the ordinary school for feeble-minded, a large number come legitimately within the duties of those caring for the feeble-minded. Many, especially females, are never arrested, their defect is recognized and their troublesome behavior is merely a manifestation of such defect. They differ from the children in the feeble-minded schools only in age. Indeed, many are considered proper subjects of such schools until adult life, with its resulting sexual activity, is reached. For this reason more provision should be made for the adult feeble-minded of both sexes, and especially for females of the child-bearing age.

The hospitals for the insane will always have many feeble-minded complicated by a superimposed psychosis. There are many feeble-minded, however, who have slight episodes, or outbreaks transitory in character, which result in their commitment to hospitals for the insane. These, if there were more provision for adult feeble-minded, would better be classed as feeble-minded and kept in institutions for such, and no uncomplicated feeble-minded should be in hospitals for the insane, whether delinquent and troublesome, or not.

REFERENCES.

1. Fernald, Walter E., M. D., "Care of the Feeble-Minded," National Bulletin of Charities and Corrections, 1904.
2. Fernald, Walter E., M. D., "The Imbecile with Criminal Instincts," American Journal of Insanity, Vol. LXV, No. 4, April, 1909.
3. Fernald, Guy G., A. M., M. D., American Journal of Insanity, Vol. LXVIII, No. 4, April, 1912.

APPENDIX.

Acts of 1911, Chap. 595.

An Act to provide for the maintenance, at the Reformatory for Women, the Massachusetts Reformatory and the State Farm, of departments for defective delinquents.

Be it enacted, etc., as follows:

Section 1. If in any case where a court might by way of final disposition commit an offender to the state prison, the reformatory for women, or any jail or house of correction, or to the Massachusetts reformatory, the state farm, or to the industrial school for boys, the industrial school for girls, the Lyman school, any truant school, or the custody of the state board of charity, for an offence not punishable by death or imprisonment for life, it shall appear that the offender has committed the offence with which he is charged, is mentally defective, and is not a proper subject for the schools for the feeble-minded, or for commitment as an insane person, the court may commit such offender to a department for defective delinquents, hereinafter established, according to the age and sex of the defendant as hereinafter provided.

Sec. 2. If an offender while under commitment to any of the institutions or to the board named in section one of this act persistently violates the regulations of the institution or board in whose custody the offender is, or conducts himself or herself so indecently or immorally, or otherwise so grossly misbehaves as to render himself or herself an unfit subject for retention in said institution or by said board, and it appears that such offender is mentally defective and is not a proper subject for the schools for the feeble-minded, the physician in attendance at such institution or a physician employed by said board shall make a report thereof to the officer in charge of said institution or to the superintendent of minor wards of said board, who shall transmit the same to one of the judges mentioned in section twenty-nine of chapter five hundred and four of the acts of the year nineteen hundred and nine. The judge shall make inquiry into the facts and, if satisfied that the offender is mentally defective and is not a proper subject for the schools for the feeble-minded, shall order the removal of the offender to a department for defective delinquents, hereinafter established, according to the age and sex of the defendant as hereinafter provided.

Sec. 3. No person shall be committed to a department for defective delinquents under the two preceding sections unless there has been filed with the judge a certificate of the mental defectiveness of such person by two physicians qualified as provided in section thirty-two of chapter five hundred and four of the acts of the year nineteen hundred and nine and acts in amendment thereof or in addition thereto. The fees of the certifying physicians shall be of the amount and paid in the manner provided for like service in said chapter five hundred and four, and acts in amendment thereof and in addition thereto.

Sec. 4. If an inmate of a school for the feeble-minded persistently violates the regulations of the school, or conducts himself or herself so indecently or immorally, or so grossly misbehaves as to render himself or herself an unfit subject for retention therein, the officer in charge of the school shall make a report thereof to one of the judges mentioned in section twenty-nine of said chapter five hundred and four. The judge shall make inquiry into the facts and, if satisfied that such inmate is not a fit subject for retention in the said school, shall order the removal of the inmate to a department for defective delinquents, hereinafter established, according to the age and sex of the inmate as hereinafter provided.

SEC. 5. At the reformatory for women, the Massachusetts reformatory, and the state farm there shall be maintained departments to be termed departments for defective delinquents, for the custody of persons committed thereto under this act. All male persons under twenty-one years of age committed under the provisions of this act shall be committed to the department at the Massachusetts reformatory. Men twenty-one years of age, or over, committed under this act shall be committed to the department at the state farm. All women and girls committed under this act shall be committed to the department at the reformatory for women. All persons committed to the departments for defective delinquents hereby established at the reformatory for women and the Massachusetts reformatory shall be and remain in the custody of the board of prison commissioners until discharged as hereinafter provided, and all persons committed to the department for defective delinquents hereby established at the state farm shall be and remain in the custody of the trustees of the state farm until discharged as hereinafter provided.

SEC. 6. The prison commissioners and the trustees of the state farm may, respectively, parole inmates of the departments for defective delinquents, herein provided for, at their respective institutions, on such conditions as they deem best, and they may at any time recall to the institution any inmate paroled.

SEC. 7. Any person may apply at any time to the justice of the district, police or municipal court in whose jurisdiction a department for defective delinquents is located for the discharge of any inmate of said department. A hearing shall thereupon be held by said justice, of which notice shall be given to the applicant and to the person in charge of the institution where the inmate is confined. If after the hearing the justice shall find that it is probable that the inmate can be suffered at large without serious injury to himself or herself, or damage or injury or annoyance to others, the authorities having custody of said inmate shall parole the inmate. Further action on the application for the inmate's discharge shall be suspended for one year from the date of his or her parole. If at the end of said year the justice of the court where the application was filed shall find that said inmate can be suffered to be permanently at large without serious injury to himself or herself, or damage or injury or annoyance to others, the authorities having custody of said inmate shall discharge the inmate. If, at any time prior to the expiration of said year of parole, the justice of the court where the application was filed shall be satisfied that the best interest of said inmate, or of the public, require the recall of the inmate from parole, he may authorize the authorities having custody of the inmate to recall the inmate from parole. If an application is denied, a new application shall not be made within one year after the date of the order denying the previous application. If a person discharged under the provisions of this section is found by any court to have committed, after his discharge, any offence against the laws of the commonwealth, said court may commit such person to a department for defective delinquents without the certificate of any physician.

Sec. 8. Any special justice, when holding court at the request of the justice, shall have the powers and perform the duties of the justice under this act. In case of a vacancy in the office of justice and in the case of the illness, absence or other disability of the justice, the special justice who holds the senior commission shall, if no request has been made as aforesaid, have the powers and perform the duties of the justice under this act.

Sec. 9. The record of all proceedings under this act, and all papers in connection therewith, shall be kept as provided in section forty-one of chapter five hundred and four of the acts of the year nineteen hundred and nine, and the same docket shall be used for the proceedings under this act which is used under said section forty-one.

Sec. 10. All commitments under this act shall be made under an order signed by the judge making the order. Orders for commitment may be served by any person qualified to serve any processes issued from the court in which the justice making the commitment sits or, in case of transfers, by any officer or attendant of the institution from which the transfer is being made. The officer or other person serving such order shall make return of service on an attested copy of the order.

Sec. 11. All the expenses attending all proceedings under this act shall be allowed, certified, and paid in the manner provided in section forty-nine of chapter five hundred and four of the acts of the year nineteen hundred and nine and acts in amendment thereof and in addition thereof.

Sec. 12. This act shall take effect when the departments named in section five are ready for occupancy. The prison commissioners and the trustees of the state farm shall notify the governor when said departments are in a suitable condition to receive inmates; and the governor may then issue his proclamation establishing such departments as places for the custody of defective delinquents. *Approved June 27, 1911.*

SENSORY PHENOMENA IN EPILEPSY.

By E. MURRAY AUER, M. D.

(From the New Jersey State Village for Epileptics, Skillman, N. J.)

Recent investigations have gone far to confirm the important role played by heredity and have repeatedly shown that infants born of parents affected with the different neuroses because of an excessively susceptible nervous system may display convulsions. This predisposition of the subjects with neuropathic taint has been termed by Joffroy "Aptitude Convulsive" and by Féré "Spasmophilia."

The exciting causes of convulsions are legion: cerebral congestion, cerebral trauma, encephalitis, cerebral sclerosis, neoplasm, meningitis, cerebral hemorrhage and hydrocephalus; by reflex action through gastro-intestinal disturbances, diseases of the viscera, body membrane, genitalia, teeth and organs of sense; after acute infection, *i. e.,* scarlet fever, typhoid, pneumonia, diphtheria, cholera; after intoxication, endogenous or exogenous, *i. e.,* autotoxins, uremia, eclampsia, alcohol, absinthe, lead, strychnine, opium, cocaine, caffine, ergot, arsenic, carbon-monoxide; the neuroses and following fright.

Epilepsy, the most common cause of convulsion, takes its place etiologically in a group between the organic lesions and the neuroses, assuming that for the latter we have no organic basis. Epileptic phenomena are manifestations of either a hyper or hypo cerebral activity occasioned by an irritation of a transitory nature producing a disturbance of the inhibition of either a normal or a pathological central nervous system, dependent upon the portion of the brain affected. Epileptic manifestations may occur at any time, are not under the control of the patient, and may or may not be accompanied by unconsciousness. Epilepsy usually has its onset in infancy or adolescence and after infancy its occurrence in the feminine sex predominates due to the onset of puberty, gestation and child birth. The influence of the menses is extremely variable inasmuch as both the onset and cessation of convulsions have been observed at the establishment of menstruation and at the menopause. In a large majority of women afflicted, epileptic phenomena are aggravated at the time of the menses, but in others there is no appreciable change. Epilepsy occurring after 35 years of age was considered by Fournier to be invariably of specific origin; however, late epilepsy may also occur in alcoholism and arteriosclerosis, in which former condition Claude (Progrès Médical, P. 497, Oct., 1912) maintained that the absorption of the alcohol does not suffice to occasion the disease but that it is necessary that the individual present an "aptitude convulsive." Investigation of the history of many epileptics with phenomena of comparatively late onset following some exciting cause, reveals the fact that they have suffered from convulsions during infancy, as notably shown in the following case:

M. E. The patient had convulsions in infancy, during dentition. She passed a normal childhood and adolescence. She married and had four children. The third child in line of birth at the age of two and a half years fell down a flight of stairs and was instantly killed before the eyes of its mother. After this shock the mother had a severe convulsion and since that time has been subject to grand mal seizures. Shock in this case was unquestionably the exciting cause but one cannot deny a susceptible nervous system as shown by the occurrence of convulsions in infancy. Tekhomiroff (Review [russe] de Psychiatrie, de Neurologie Experimentale, Mars, 1913) reported the case of a soldier of 22 years of age who after a moral shock developed a "status epilepticus" in which he died. Oppenheim stated, "I have seen no small number of cases in which the individual, who until this time had shown only symptoms of neurasthenia, hysteria or psychesthenia, under the influence of a heavy psychic shock seized with epileptic convulsions." Since the onset of the present war, Oppenheim (Berlin. klin Wochenschr., 1914, N. 48) has observed an exacerbation of epileptic phenomena in personally observed cases, and concluded that it seemed possible that severe neuroses and organic changes of the nervous system may develop through the mechanical impulse occasioned by a passing shell or through its explosion without its coming in direct contact with the individual, just as has been observed as occurring after lightning stroke.

The occurrence of epileptic phenomena in syndromes, unquestionably the result of the disease of the glands of internal secretion, need not necessarily be considered as a direct result of this glandular disturbance, but rather, the result of the auto-toxin arising from this disturbed glandular function acting on a nervous system of lessened resistance or lowered inhibition. Bolten (Deutsche Zeitschrift für Nervenheilkunde, 1914) stated, "Genuine epilepsy is a chronic auto-intoxication arising through metabolic processes in which, as a result of hypofunction of the thyroid and parathyroid glands, the poisons are not thoroughly neutralized or removed." That there surely is some other factor than the hypofunctioning of the thyroid or parathyroid glands is shown by the fact that a great majority of cases of hypothyroidism exhibit no epileptic phenomena and that many cases of hyperthyroidism do exhibit such tendencies. Despite the fact that various toxines have a predilection for different portions of the nervous system one cannot exclude the possibility of a variable resistance of the different portions of the central nervous system, inasmuch as the number of epileptics constitutes but a small percentage of the cases of intoxication or auto-intoxication, and because of the occurrence of epileptic phenomena of a physical motor and sensory nature.

Sensory manifestations may occur either as pre-paroxysmal, paroxysmal, or post-paroxysmal phenomena, in the former condition constituting the well-known "Aura." As aura may be cited the following sensory phenomena, gathered from examination of the patients in this institution and herewith submitted.

Visual.—"Flashes of light," "dark, fleeting spots," "red and green colors," "balls of fire," "lines moving up and down." In the cases showing this, inquiry has resulted in the statement that the manifestations are in the perpendicular and seen with the eyes opened and closed. "Objects decreasing in size," "shadows of things jumping up and down," "blurring of vision," "dark cloud descending," and "things like diamonds."

F. B., aged 13, case of Dr. William G. Spiller, University Hospital Dispensary Service.

Patient's previous and family history negative.

On December 13, 1913, the patient was struck on the head by an automobile. He was unconscious for six days after the accident, during which time he had twitching of the face, arms and legs, more on the right than on the left side.

August 13, 1914, he began to have convulsions; his first convulsion was preceded by vertigo in which his head seemed to whirl from right to left; the outside world seemed whirling in the same direction; the convulsive seizures seemed limited to his face and equally so on each side. He was stiff all over his body but clonic only in his face. From October 1, 1914, to January 13, 1915, he had five attacks. He has aura of bands of light, vertical in arrangement, first red, then green, and then purple. These colors are in the axis of central vision; at times he has had the aura without the convulsion.

Examination of the eye grounds was negative. Nothing of importance in the physical or neurological examination.

Auditory Aura.—"Humming," "buzzing," "hissing," "roaring," "unusual quietness," and as in Gowers' cases "a crash (compared to an explosion) in his head or a clang as though a piece of metal was struck within his head," "voices repeating in her head."

Olfactory.—"A disagreeable acid odor which gradually becomes more offensive until he loses consciousness."

Gustatory.—"A salty, bitter taste," "a tasting of sour on his tongue and lips."

Visceral.—Epigastric pain is the most common aura and may be sharp shooting, or a dull heavy pain. There may be "gnawing," "burning," "an indescribable feeling," "as though something heavy had crawled over the stomach," "something moving in the stomach." One also notes "pain in the chest," "palpitation of the heart," "pressure or pain over the heart," or "turning about of the heart." "Choking and tickling sensations of the throat," "suffocation," "strangling," "desire to urinate and stool."

Aura of the nature of a paresthesia may be unilateral or bilateral of any location and distribution, "a slow freezing sensation of cold, beginning in the soles of the feet and ascending to the head." There may be a true chill, with shivering and chattering of the teeth, "tickling over the entire body," "needle-like pains in the left fingers and arm," "numbness of the left arm," "stinging feelings in the fingers of the right hand."

Camp (Journal of Mental and Nervous Disease, February, 1910) reported a "feeling as though the left leg were going up in the air," although in reality it did not move. "Numbness of the tongue," "feeling of pins and needles, as though the arm or leg had been asleep," "cramping pain, beginning in both big toes, and occasionally in the fingers," all have been described.

H. B., born February 3, 1875, full term, normal birth.

Admitted, May 27, 1915.

Family History.—The patient is the third in line of seven conceptions of which there were three miscarriages. One brother died in convulsions at three months of age, another at two years of age, another brother is said to have had convulsions during a fever and now is considered to be defective. The patient's father was the seventh in line of birth of nine children and at the age of 71 he died in an asylum, having been insane only for the last three months of his life. The other children exhibited nothing of note except that one sister, Martha, was mentally deficient. The paternal grandfather was tubercular, otherwise negative. The mother is still living, and is a strong, healthy, ignorant woman, who is said to have had no convulsion during dentition and to have always been nervous and to have had nervous prostration at one time. She was an illegitimate child, and has four maternal half brothers, and one maternal half sister who is said to be hysterical. One brother is said to have been a heavy drinker and immoral, another who was a heavy drinker was said to have died of some venereal disease. A third brother, Robert, who was a hard drinker, very nervous and subject to severe headaches, married a woman who had headaches and whose father was an epileptic. They had five children, two of whom have shown epileptic manifestations. The maternal grandmother is still living. There is nothing of note in the history of the maternal grandparents.

The patient is said to have had her first convulsion at two years of age as a result of worms. When she was six years of age her father punished her and shoved her from him. She fell, striking her head on the corner of a brick and was unconscious for several hours, after which she is said to have been paralyzed for nine months. The side of the paralysis is not given. She had her second convulsion after this paralysis and has had them since.

She is a small, well-nourished, sallow-complexioned woman of middle age, who walks with a limp, due to a shortening of the right leg, the result of an old fracture. She has an exopthalmos due to an uncorrected high degree of myopia. The heart is strikingly slightly enlarged, and there is a loud, harsh mitral systolic murmur heard at the apex and transmitted to the axilla and the back. The pulse is irregular in force and rhythm. The liver is slightly enlarged and painful on palpation. The neurological examination reveals nothing of note. Mentally the patient is defective, but there are no delusions or hallucinations.

Description of Attack.—A black round object appears about to fall from above and to the left upon her head; she can close her eyes and still see it. She will raise the left arm to protect herself and her eyes then begin to move to the right and upward. She is transitorily unconscious, after which she is unable to feel anything on the left side and that side feels cold to the touch. There is a loss of all form of sensation on the left side for a period of approximately six hours. She has other spells in which sensory symptoms precede a hard convulsion. Rainbow colors suddenly begin to dance up and down before her eyes. Green is the most prominent color and red the next, she sees these with her eyes open and closed, but more clearly in the latter condition. She sees these in the entire visual field and they appear to be more faint in the right eye. She has then a feeling of pin prick and a feeling as though the left side were asleep. Then the entire side is extremely cold, " as though she had ice instead of human flesh." The left side then becomes numb, and all sensation is lost. At times, she has a feeling of a transitory nature, as though some one was thumping her in the pit of the stomach. This precedes a severe grand mal attack of 10 or 15 minutes.

The first warning of convulsion is a dull frontal pain, more marked on the right side. Things before her then become all colors, " and the shadow of things about me will be dancing up and down." At the same time she is seized with a feeling of numbness in the left arm, side and leg, and will shriek, " I'm numb, I'm numb." The left side has a feeling of pin pricks " as if your foot has gone to sleep." Cries for some one to come and rub her side, and does not feel anything in this side until " they have rubbed the life back into it." In five to ten minutes she will fall to the floor, if up, unconscious, will roll about a few times and then convulse, frothing at the mouth, for five to eight minutes. Does not bite her tongue or soil her clothing. Is extremely weak after her seizure. Has petit mal attacks in which she has suddenly great difficulty in seeing, more marked in the right eye. She has a " thumping pain in the stomach and a feeling on the right arm as though she had bumped her funny bone." She has a sensation of being blind and cries, " I am dying, I am dying." She does not appear to lose consciousness and with these does not convulse. This is of about

10 minutes duration and after it the patient is weak for two or three hours. In her grand mal attacks she occasionally has most marked change of temper, and in contrast to her usual mild, docile nature, scolds, shouts and is exceedingly angry. The attacks occur usually before her menses. She is of an ashen color until she begins to convulse and then is almost purple. Patient was at Vineland previous to coming here.

A. B., aged 27. Private patient of Dr. William G. Spiller.

The patient's mother has headaches preceded by a sensation of something dropping before her eyes. Her headaches are relieved after vomiting. She is said to be a neurasthenic. His father is very excitable and neurotic. During childhood and adolescence, the patient had severe headaches on an average of once a week, until the age of 17 or 18. He is very high strung, married and has two children. He denies venereal disease and gives no history of tuberculosis. He drinks perhaps one glass of beer a month and an average of one cup of coffee daily.

Three years ago, at the age of 24, he was taken with an attack in which the right side suddenly became numb. He could not localize the onset of the numbness in any one part but states that wherever it began it spread over the entire right side in waves, *i. e.*, it disappeared from one part and returned to it shortly. Since then he has had six or seven attacks in a day and has gone as long as three months without having any. In some attacks he has had difficulty in speaking for a moment, at other times he had a twitching of the right orbicularis palpebrarum. At still other times, he has been unable to write correctly during these attacks, and on one or two occasions has had tinnitus aurium in the right ear. About one year ago, previous to an attack, he had a sensation of a veil drawn before his eyes, producing complete blindness. There is no weakness and no involvement of the left side.

Pupils are round, equal, react promptly to light, direct and consensual and in accommodation. Sense of touch and pain are normal, on both sides of the face, both hands and both legs. Stereognostic sense, sense of passive movement are normal in both hands. Grasp of each hand is powerful, no weakness anywhere. Right knee jerk entirely normal, left slightly diminished. He is not subject to pain or ataxia. The attacks have not been as numerous recently, but appear to be more severe of late. He has on an average of three or four daily, and is entirely free only for one day. Previous to some of his attacks he has tinnitus aurium of the right ear, like a blacksmith pounding an anvil, and he can almost believe he hears it. The attacks are strictly confined to the right side.

On February 27, 1913, he had a severe occipital headache which lasted two days and a similar headache in March, but this was accompanied by no visual phenomena. Occasionally, during his attacks, he is aphasic and unable to utter a word.

On October 1, 1913, the patient stated that at one time the numbness gradually spreading over the entire right side will be the noticeable feature of an attack. At another time, a painful sensation of burning or stinging or flashes of heat, and again of cold will be the most prominent. Speech is sometimes impossible for a few moments.

May 7, 1914. The patient was conscious of the onset of what seemed to be a more severe attack and his right arm began to flex strongly in spite of his effort to resist it. He then lost consciousness and was later told he was unconscious for 10 or 15 minutes durng which time he had a typical epileptic seizure, with little clonic spasm. He did not bite his tongue or soil his clothing. After the attack, he had severe pain in both shoulders, especially in the deltoids, and also about the temporal maxillary articulation. He had no desire to sleep.

May 14, 1914. Attacks have become more frequent of late, and in some he is unable to speak for one-half to one minute, has an excessive secretion of saliva and tears, and frequently a ptosis of the right eyelid, and some times both lids would close in spite of voluntary effort to keep them open. At times, he states he had an almost irresistible desire to flex the right arm and to rub the right cheek, but has prevented this by strong effort. Always with his attacks there is a peculiar numbness or tingling of the right lateral half of the body.

May 22, 1914. Patient describes a similar attack of numbness and tingling, during which his right arm was noticeably ataxic, but there was no loss of the stereognostic sense.

Post-paroxysmal phenomena are not as common, especially so of the special senses; amblyopia has been reported, as has also constriction of the visual field. Thompson and Oppenheim considered this latter occurring more especially in attacks of a psychical nature, but it is stated by Féré that it is also found as a result of attacks with a loss of consciousness.

Auditory disturbances are extremely rare, although deafness has been described. The loss of the senses of smell and taste have been described following serial seizures. Diminution or a loss of sensation has been noted after convulsions, lasting from a short time to a day, touch and pain being usually affected.

Straussler (Monatsschrift für Psychi. und Neurologie, Mai, 1908) cited the case of a man aged 22, with an endocardial lesion, who had convulsive attacks which began in the right arm and were followed by a right-sided hemiplegia. Sensations to touch, pain and temperature were diminished over the right side of the body. Lewandowsky (Deutsche Med. Wochenschrift, 1907) reported a case of Jacksonian epilepsy followed by hemiplegia in which there was a subjective sensation of coldness in the paralyzed side.

Perugia (Riforma Medica pp. 876-879, Apr. 9, 1913) reported the case of a young man aged 23, who, after a convulsion became deaf and mute, and was unable to speak, but he could express himself by writing. This mutism would last as long as five days. The author excluded hysteria, and considered the motor aphasia and deafness as of toxic origin.

H. Bennett in this connection has stated that the sensory disturbances as post-paroxysmal phenomena stood in no direct relationship either to the intensity of the seizures or the degree of motor convulsions.

Without reviewing the extensive literature concerning the association of migraine to epilepsy, one must in considering the influence of heredity, the onset during early life, the periodicity of attacks, the occurrence of prodrones, the unilaterality, exhaustion, chilliness, and the occurrence of unilateral paresthesias and transitory aphasia, observed in both conditions, admit a justifiable ground for relationship.

C. W. (N. J. S. V.), aged 20. At the age of 11, early one morning while in bed, patient had a typical grand mal seizure, after which he slept for a long time, but upon waking had a severe headache and was nauseated. Two months after this attack he was struck in the left eye with a base ball, which resulted in the loss of vision of his left eye. He has on an average an attack once or twice a month. These are usually nocturnal. Previous to his attacks he has a very slight pain in both eyes, and things about him become rigid and statue-like. This lasts about five minutes, when at arms length a bright spot the size of a dollar appears, and he follows this always moving to the right and his head and eyes turn to the right. He has tried to look away from this but cannot. He does not see this with the left eye. After a severe grand mal seizure he has severe sharp headaches but does not vomit.

H. P. Patient has grand mal attacks previous to which things either dance up and down or a dark cloud appears before the eyes, shortly preceding a severe headache, all of which is of three or four minutes duration before a severe grand mal seizure. Patient occasionally, previous to the onset of the convulsion, has an aura of "numbness of the tongue."

M. M. (Dispensary Service, University of Pennsylvania Hospital). (Yawger, Journal of the A. M. A., October 17, 1914).

On July 22, 1903, at seven years of age, the patient was brought to the hospital because of spells in which "her eyes went up in her head" and she had "twitching of the nerves about her eyes." She returned February 4, 1910, and her mother stated that the child had no ambition and was drowsy and sleepy all the time. She had an occasional headache. The patient was having attacks every day in which she was unconscious, her eyes twitched and her hands moved restlessly, but she did not convulse. Previous to her convulsion she had a slight aura in the nature of a feeling of tightness and her speech became somewhat nervous. While under observation she had an attack during which she ceased talking, rolled her eyeballs upward and appeared as though going to sleep; there was also a slight twitching around the corners of the mouth. The attack lasted 30 seconds. On December 7, 1912, the patient was again seen and complained of a typical migraine, having headaches one or twice a week, on which days her attacks increased in number. She would suddenly see a bright light like a gas light before one or the other eye. This would flicker and last for about 20 minutes, and in about five minutes after its disappearance she would have a severe headache of sudden onset lasting for about one-half hour. In 10 or 15 minutes she would feel very weak and begin to vomit, after which the headache would cease. Both eyes were never affected at the same time, and she could not see anything out of the affected eye and but little out of the other. At times the light would come from above, downward, and at other times straight at her. The tail was always to the outer side. The patient had occasionally a diplopia before the attack occurred.

THE CORRELATION OF CLINICAL AND SEROLOGICAL FINDINGS IN PARESIS AND CEREBROSPINAL SYPHILIS.*

By IRA A. DARLING, M. D.,
State Hospital, Warren, Pa.,
AND
PHILIP B. NEWCOMB, M. D.,
Clinical Director, State Hospital, Osawatomie, Kansas.

Considerable interest has, of late, been attached to the value of the Wassermann reaction in the differential diagnosis of general paralysis of the insane and cerebrospinal syphilis, and there appears still to be some divergence of opinion. In 1909, Ernest Jones[1] summed up the literature relative to general paralysis to date by saying: "A positive reaction (Wassermann) in the cerebrospinal fluid is strongly indicative of general paralysis, a negative reaction less strongly but unquestionably indicative of its absence; a positive reaction in the blood serum of a suspected case of general paralysis is of some value in support of the diagnosis, a negative reaction there is of much greater value in excluding such a diagnosis." Although many report 100 per cent positive findings in both blood and fluid, the above general statement is to-day probably more acceptable to the majority of workers than any more rigorous insistance upon constantly positive results. Nonne, in his book states: "Positive W. R. in the blood means no more than that the person has once been in contact with syphilis (hereditary or acquired), or that somewhere in the body a specific lesion still exists, but it does not mean necessarily that the disease in question must be luetic." And relative to the spinal fluid: "In the large majority of cases of general paralysis the W. R. is usually positive on using only 0.2 cc. of fluid, but in some few cases, and in most cases of cerebrospinal syphilis and of tabes, the W. R. is positive only on using larger quantities of cerebrospinal fluid." As typical findings he gives the following:

General paralysis:
  Blood positive in 100 per cent.
  Fluid positive in 90 to 100 per cent.
Cerebrospinal syphilis:
  Blood positive in 70 to 80 per cent.
  Fluid positive in 20 to 100 per cent.

---

* From material collected at the Warren State Hospital.

In these instances the smaller figures are for technique in which small amounts of the serum or fluid have been employed and the larger for that in which more is used. Several American writers, notably Kaplan, have insisted on the value of a negative W. R. in the cerebrospinal fluid in the differential diagnosis. He makes the following statement,[2] which perhaps represents the extreme viewpoint. "It is possible to differentiate serologically between paresis and cerebrospinal syphilis," and tabulates the difference as follows:

General paralysis:
  Blood W. R. positive (rarely negative).
  Fluid W. R. positive (rarely negative).
Cerebrospinal syphilis:
  Positive or negative.
  More often negative.

While examining the opinions given at staff meetings at the Warren State Hospital on 697 routine admissions, it was found that 87 (12.5 per cent) were considered to be syphilitic diseases. Of these 69 (9.9 per cent) were, in the opinion of the majority, unquestionable cases of general paralysis and 5 (0.7 per cent) were cerebrospinal syphilis. Concerning the remaining 13 cases (1.8 per cent) there was a diversity of opinion. By a more careful analysis of these cases it was determined that eight of the 69 paretics had had negative Wassermann reactions upon the blood, this being 11.6 per cent of all those suffering from this disease. Three, or 60 per cent of the cerebrospinal syphilitics also failed to show a positive reaction on the blood. In all these cases the W. R. on the spinal fluid was positive. As the value of such observations as these depends almost entirely upon the accuracy of the Wassermann technique I will quote the following from Paul G. Weston[3] as that used by him in all the cases reported here:

Wassermann Reaction.—The quantities of all reagents used were half those ordinarily used in the Wassermann test.

Complement.—The mixed serum from five guinea pigs was used. It had been three hours on the clot, one-half hour at 37° C., and two and a half hours at 5° C.

Hemolytic Amboceptor.—Antihuman rabbit was used. The unit was the amount that would cause complete hemolysis of 0.5 cc. of a 2.5 per cent suspension of washed human corpuscles in the presence of 0.05 cc. of the above described complement in a 2.5 cc. mixture in just two hours at the temperature of 37° C. Two units were used in each test.

Positive Control Serum.—Serum obtained from a case of paresis was used. It was inactivated by heating in a water bath at 55° C. for one hour.

Negative Control Serum.—A mixture of sera obtained from 10 non-syhilitics was used. It was inactivated by heating in a water bath at 55° C. for one hour.

Antigen.—Human heart muscle, free from pericardial fat, was ground in a meat chopper and covered with absolute alcohol in a wide-mouthed bottle. After 48 hours the alcohol was decanted onto a dinner plate and the tissue expressed between layers of cheese cloth. The expressed juice was added to the alcohol and the tissue returned to the bottle. The alcohol was evaporated by means of a current of air from an electric fan and the residue scraped up with a bone spatula and added to the tissue. Three volumes of absolute alcohol were then added and the bottle remained at room temperature for two weeks. At the end of this time the alcoholic extract was filtered off and to each 8 cc. was added 2 cc. of a 2 per cent solution of cholesterol in absolute alcohol.

Titration.—This antigen was non-hemolytic. The anticomplementary dose with normal serum was .15 cc. The antigenic dose was .00125 cc. The amount used in each test was .0125 cc. or 10 times the least antigenic dose, and one-twelfth of the anticomplementary dose.

Controls were carried for each reagent.

Spinal Fluid.—In all reactions 0.5 cc. of unheated fluid was used. The globulin was tested according to the method of Noguchi.

Cell counts were made by the Fuchs-Rosenthall method Five drops from each pipette were counted.

All the reactions mentioned as positive were ++++.

As the number of cases observed here is small, it seems worth while to present somewhat in detail those in which the laboratory findings are of the most interest.

CASES DIAGNOSED PARESIS IN WHICH BLOOD W. R. WAS NEGATIVE.

CASE No. 1, HOSPITAL No. 6834.—Patient male, aged 43, laborer. History of syphilis "many years" ago. Psychosis began when 40 years old with abrupt change of disposition, morose manner, talkative and expansive delusions. Physical examination showed equal, irregular, spastic pupils, unequal knee reflexes, sensory disturbances, incoordination, slurring speech and washed out facial expression. The one specimen of the blood taken was negative to the Wassermann. Of eight spinal fluid examinations the Wassermann reaction was seven times positive and once negative. Globulin positive once, negative seven times and the cells varied from 13 to none. Death occurred two years and eight months after the onset. At the post-mortem examination the diagnosis of paresis was confirmed.

CASE No. 2, HOSPITAL No. 8201.—Patient male, age 46, lumber dealer. History of syphilis six years ago. Five months before death he became irritable and complained of indefinite illness. Six weeks later he suddenly became much confused, had vivid visual hallucinations, strong auto-accusatory trend of thought and delusions of persecution. During his hospital residence of two months consciousness was clouded, disorientation was complete, and he was restless, conversed incoherently and expressed many vague changeable delusions of a persecutory and somatopsychic nature. Physical examination showed muscle tremors, incoordination, slurring speech, areas of anæsthesia, Argyll-Robertson pupils, hyperactive knee reflexes and relaxation of the facial muscles. One specimen of the blood and fluid was taken. Wassermann reaction negative in the blood, positive in the fluid. Globulin positive and cell 40 per cubic millimeter. Two months after admission death occurred and the autopsy confirmed diagnosis of paresis.

Case No. 3, Hospital No. 8066.—Patient male, age 44, musician. History of syphilis when 36. Psychosis began when 41 years old with failure to attend to his work, forgetfulness, delusions of grandeur, and gradual general mental delapidation. Physical examination showed positive Rhomberg, muscle tremors, Argyll-Robertson pupils, hyperactive unequal knee reflexes, slurring speech and washed out facial expression. Two specimens of blood were negative to the Wassermann test but after a .45 gm. dose of neo-salvarsan, with Swift-Ellis treatment seven reactions taken over a period of two years were positive. Eleven specimens of the fluid were all positive to the Wassermann; eight were positive and three negative to the globulin test and the cells varied from 70 to none. Death occurred two and a half years after admission and the autopsy confirmed diagnosis of paresis.

Case No. 4, Hospital No. 8195.—Patient male, age 57, business man. History of syphilis 20 years ago. Psychosis began when 54 with change of disposition, gradual loss of business capacity, speech defect, vague persecutory delusions and gradual dementia. Physical examination showed muscle tremors, incoordination, Argyll-Robertson pupils, and hyperactive knee reflexes. Wassermann reaction on the blood negative, on spinal fluid positive, globulin positive, and cells four per cubic millimeter. Death occurred three months after admission and permission for autopsy was refused. However, our diagnosis of general paralysis of the insane is corroborated by similar diagnosis made at the Sheppard and Enoch Pratt Hospital just previous to admission here.

Case No. 5, Hospital No. 8705.—Patient male, age 52, teamster. No history of syphilis. Psychosis developed at the age of 51 with wandering tendency, rambling incoherent conversation, expansive delusions, inability to accomplish simple tasks and defective orientation. Physical examination showed slightly spastic gait, muscle tremors, Argyll-Robertson pupils, hyperactive knee reflexes, slurring elision of speech, and ironed out facial expression. Two specimens of blood taken with an interval of three months were negative to the Wassermann test. One month later a positive reaction was obtained. The spinal fluid gave a positive Wassermann reaction, positive globulin, and contained five cells per cubic millimeter. The "Goldsol" curve was of the paretic type. Diagnosis paresis.

Case No. 6, Hospital No. 7597.—Patient male, age 44, fireman. No history of syphilis. Psychosis developed at the age of 39 with diminishing capacity for work, insomnia, poor impressibility of memory, judgment defect, grandiose trend of thought, and lack of insight. A physical examination showed muscle tremors, unequal irregular pupils that reacted poorly to light but well to accommodation, equal but hyperactive knee reflexes, slurring speech and washed out facial expression. Three specimens of blood taken at an interval of one year were all negative to the Wassermann test. Five tests were made on the spinal fluid and all gave a positive W. R.; with globulin positive three times, negative twice; cells varied from 60 to none. Diagnosis paresis.

Case No. 7, Hospital No. 8187.—Patient male, age 48, salesman. History of syphilis at the age of 20. Psychosis began at the age of 45 with excessive worry over possible results of his early syphilitic infection, which at last became so great as to prevent work and sleep. Made several weak attempts at suicide. Physical examination showed slightly spastic gait, speech defect, pupillary margins irregular and reaction to light impaired and hyperactive knee reflexes. The blood was negative to the Wassermann reaction on six tests. The spinal fluid was at first positive; became negative after Swift-Ellis treatment and then was persistently positive in spite of further treatment. Globulin was positive in the first four tests and negative the last three; cells varied from 24 to none. Patient taken home against advice and has since committed suicide.

Case No. 8, Hospital No. 8102.—Patient male, age 47, oil-producer. History of syphilis when 19. Psychosis began at the age of 43 with excessive desire to eat and sleep, then a sudden onset of great confusion, restlessness, careless habits, poor memory, and a grandiose trend of thought. Physical examination showed positive Rhomberg, sluggish knee reflexes, irregular pupils that reacted poorly to light, muscle tremors, slight speech defect, and washed out facial expression. Two specimens of blood have given negative Wassermann reactions and the single fluid taken was positive. Globulin positive; cells four per cubic millimeter. Diagnosis paresis.

Cases Diagnosed Cerebrospinal Syphilis.

Case No. 9, Hospital No. 8571.—Patient male, age 16, school boy. No history of syphilis and both parents have Wassermann negative blood. Normal intelligent child until failing vision began at the age of 12, resulting in a complete optic atrophy a year later. A gradual dulling of all mental faculties began at 13, and resulted in a deep dementia by the time he was 16. A cerebral episode followed by transient loss of speech occurred when he was 15. In walking he took short uncertain steps, moved sideways and tended to travel in circles. Hands were tremulous, he was resistive but not spastic, knee reflexes normal, no pathological reflexes, expression that of an idiot, pupils unequal and failed to react to light or accommodation. W. R. on both blood and fluid positive twice; six weeks interval. Globulin was negative once and positive once; cells three and six respectively. "Goldsol" curve of the paretic type. The autopsy confirmed the diagnosis of cerebrospinal syphilis.

Case No. 10, Hospital No. 7854.—Patient male, age 55, traveling salesman. History of syphilis about 25 years ago. Onset at 53 with the sudden development of great weakness of the right leg, hysterical worry and irritability. During his hospital residence he had several convulsions, all confined for the most part to the right side, and following each there was a more marked paralysis of that side. Organic reflexes became impaired and during the last few months a slowly developing weakness of all the muscles was observed. At that time there was a right ankle clonus, Babinsky and Oppenheim; all other deep reflexes much exaggerated on both sides, pupils irregular and reacted poorly and sensation changes were questionable. Failing memory and a suggestion of aphasia were the prominent mental characteristics. Wassermann reactions; blood negative, fluid positive. Globulin positive, cells three per cubic millimeter. Autopsy showed cerebrospinal syphilis with focal lesions.

Case No. 11, Hospital No. 8149.—Patient male, age 35, boiler maker. History of syphilis at the age of 25. Optic atrophy began at the age of 31 and shortly after that he showed a change of disposition being irritable and subject to periods of very unreasonable anger. No distinct mental disturbance demonstrated while at the hospital. Physical examination showed optic atrophy, sluggish knee reflexes and stiff pupils. Wassermann reaction on the blood positive. Six specimens of the spinal fluid taken over a period of 10 months all gave a positive Wassermann reaction, globulin always positive and the cells varied from three to 100. Diagnosis cerebrospinal syphilis. (The possiblity of a later development of taboparesis must be considered in this case. Present symptoms do not justify such a classification.)

Case No. 12, Hospital No. 8231.—Patient male, age 40, farmer. History of syphilis when 14 years old. When 37 years old he suffered a transient paralysis of both arms. At 39 he had a transient paralysis of the right side of the body. Four months after this sudden paralysis of all four extremities, the muscles of articulation and of deglutition developed. He was unconscious only at the time of the last stroke. This last condition cleared up after a few months except for the muscles of articulation, and during the year that he was under observation he was unable to speak but conveyed ideas clearly by writing. Conduct previous to admission suggested delusions of infidelity and of jealousy, but the presence of these was always questionable. Physical examination showed deviation of the tongue to the left, residuals of a right hemiplegia, paresthesia of the right leg, slight muscle tremors, and paralysis of the laryngeal muscles. Wassermann reactions; blood negative, fluid positive. Globulin test positive, cells five per cubic millimeter. Diagnosis, cerebrospinal syphilis.

Case No. 13, Hospital No. 8200.—Patient male, age 63, insurance agent. History of syphilis at the age of 39. Beginning at the age of 47 he suffered necrosis of the nasal bones and severe headaches for a period of two years. When 55 he began to have dizzy spells and transient attacks of monoplegia. Eight months previous to his death the physical disturbances witnessed here began, accompanied by disorientation and clouding of consciousness and several very vague autopsychic delusions. Physical examination showed partial paralysis of both legs, the left being the weaker, and both being a little spastic, impaired vision and hearing, muscle tremors, some difficulty of deglutition, hyperactive left patella reflex, left Babinsky, double Oppenheim, and unequal pupils that reacted well. Wassermann reactions; blood negative, fluid positive. Globulin test positive; cells two per cubic millimeter. Autopsy was refused. Diagnosis cerebrospinal syphilis.

SUMMARY TABLE.

No. Case.	Paresis.						
	Blood.		Spinal Fluid.				
	W. R.		W. R.		Globulin.		Cells.
	+	−	+	−	+	−	
1................	0	1	7	1	1	7	13 to 0
2................	0	1	1	0	1	0	40
3................	7	2	11	0	8	3	70 to 0
4................	0	1	1	0	1	0	4
5................	1	2	1	0	1	0	5
6................	0	3	5	0	3	2	60 to 0
7................	0	6	6	1	4	3	24 to 0
8................	0	2	1	0	1	0	4

No. Case.	Cerebrospinal Syphilis.						
	Blood.		Spinal Fluid.				
	W. R.		W. R.		Globulin.		Cells.
			+	−	+	−	
9................	2	0	2	0	1	1	3 to 6
10................	0	1	1	0	1	0	3
11................	1	0	6	0	6	0	3 to 100
12................	0	1	1	0	1	0	5
13................	0	1	1	0	1	0	2

Figures represent the number of positive or negative reactions in the individual cases.

Summary.—In the series of routine cases presented here:

1. A positive W. R. in the blood seems to be the rule, but even repeated negative findings do not exclude a diagnosis of paresis.

2. The blood W. R. may or may not be positive in cerebrospinal syphilis.

3. A positive W. R. was found in the spinal fluids of all paretics and cerebrospinal syphilitics.

4. The globulin reaction was very inconstant in both conditions and of no aid in the differential diagnosis.

5. The cell count varied greatly in both conditions, but was as great in one as in the other.

6. The five cases of cerebrospinal syphilis with uniformly positive W. R. in the spinal fluids, two positive and three negative bloods, show clearly the difficulty in diagnosis by laboratory methods alone.

7. Cases three and five demonstrate the necessity of making a series of tests whenever possible.

8. Experience with these and many other cases inclines the authors to believe that all the bloods here reported as negative would have given positive reactions to the Wassermann test if there had been an opportunity to make a series of tests.

9. Satisfactory diagnosis can only be made when the clinical and laboratory findings are considered together.

REFERENCES.

1. American Journal of Insanity, Vol. 65, p. 662.
2. American Journal of Insanity, Vol. 69, p. 243.
3. Journal of Medical Research, Vol. 30, No. 3, p. 377.

THE FUNCTIONS OF A PSYCHOLOGIST IN A HOSPITAL FOR THE INSANE.*

By SHEPHERD IVORY FRANZ, Ph. D., M. D., LL. D.,

Scientific Director Government Hospital for the Insane; Professor of Physiology, George Washington University.

The functions or duties of an employee of a mercantile establishment have to a great extent been determined or limited by custom. This statement applies particularly to those who are members of trades unions but it is also applicable to most other workers. The individual who is employed as a porter, or as a bookkeeper, or as a salesman, or as an overseer, is, if he has had any previous experience in such a position, the possessor of knowledge regarding the general duties which he may be called upon to perform, or the tasks which may be required of him. There is, we may say, a social understanding of his general relations to the community with which he becomes connected. Recently, on account of developments in the industrial world older conceptions of the duties of employees have undergone considerable change in certain businesses, and in an up-to-date business each and every employee has the ideals of the establishment set before him. In the department store, for example, the porter not only loads and unloads, and transfers to different parts of the building, cases of goods, but if he has properly absorbed the ideals of the store, he continually seeks to discover means of preventing waste, and at the same time he becomes a potential seller of merchandise. In the factory advancing along modern lines the bookkeeper concerns himself not only with invoices and bills and costs and income, but he becomes a factor in increasing the output of the plant, in bettering the quality of the manufactured articles, and in devising means for enlarging the uses to which the establishment may be put.

Speaking broadly, the above considerations should hold for the functions and duties of a psychologist in a hospital for the insane. There is the distinction, however, that there is no extended period of time and there is no extensive number of those who have been employed as psychologists in institutions for the insane, and we cannot appeal to history or to tradition, and not much to custom, to set the limits or breadth or character of the functions of the psychologist in this possible line of endeavor.[1] We are, therefore, forced to seek elsewhere for the conception of his functions. This is to be found in the hospitals themselves.

---

* Read at a joint meeting of the American Psychological Association and Section H of the American Association for the Advancement of Science, San Francisco, August 5, 1915.

A number of years ago the late Dr. Weir Mitchell became unpopular in psychiatric quarters for a time by his characterization of the institutions for the insane as huge caravansaries or boarding-houses. The critical observer at the present time may well wonder whether or not Dr. Mitchell's animadversions had produced any lasting effect. It is apparent that many of our asylums, some of which are masquerading under the name of hospital, have not advanced beyond the stage of belief that the main reasons for their existence are to protect the patient against his own anti- and unsocial acts, to protect the community against the possible misdemeanors of the patient, to see that the patient if he is not bodily ill does not become a total burden upon the state by keeping him occupied with some harmless but value-producing occupation, in some cases to record his history and make a diagnosis when his condition conforms to text-book accounts, and to prescribe suitable doses of cathartics and other simples when such drugs appear to be needed or are asked for by the patient.

---

[1] The history of the employment of professional psychologists in institutions for the insane forms an interesting chapter in the history of the development of psychology in this country, which cannot be dealt with in detail at this time. Several important events may be mentioned. President G. Stanley Hall while Professor of Psychology in the Johns Hopkins University was superintendent of a public asylum for the insane in Baltimore. Dr. Boris Sidis was associate in psychology and psychopathology in the Pathological Institute of the New York State Hospitals when it was under the direction of the late Dr. Ira Van Gieson, but his employment was objected to by the State Commission in Lunacy (judging from the reported communications between Dr. Van Gieson and that body). For a subsequent period of a dozen or more years no such non-medical psychological investigator was employed in that institute. It is also of interest to note that although the psychological aspects of insanity have recently been emphasized (perhaps over-emphasized), the employment of professional psychologists in psychiatric institutes in this country is not only far from general but rather the exception. The demands for a specific "medical psychology," whatever that may be, and perhaps also a reaction against the type of popular psychologizing in some quarters are probably responsible in large part for this state of affairs.

The steward, or financial officer, of one of our larger institutions for the insane, one with over 2000 patients, is reported to have recently said that with the aid of a good physician he could carry on the work of the institution in a proper manner and one which would fulfill its functions.[2] Such a statement indicates a view held not only by some of the laity regarding the functions of hospitals for the insane, but at the same time mirrors the medical ideas of many physicians regarding the places in which the insane are incarcerated. The term incarcerate is used advisedly in this connection, for although it has become customary to designate such places hospitals, in many cases they remain far from hospital ideals and far from the practices of the general hospital to which they are supposed to conform. It is not an exaggeration to say that many of the institutions for the insane in this country remain at the boarding-house stage which was so aptly characterized and condemned by Dr. Mitchell, and signs are present that in not a few cases the institutions are not kept up to good boarding-house standards.

In institutions such as have been described the psychologist as a psychologist could have no function, for he would be neither jailor, nor physician, nor bookkeeper, nor cook. In such an institution he could do only what could be done by any other intelligent, sympathetic, scientific layman, or by a wide-awake physician. He could note the lack of interest in the purely medical problems, he could see the routine methods of dealing with the patients as cases rather than the scientific and progressive method of considering them as individuals, he would have forced upon his notice the exaggeration and almost exclusiveness of the importance of the bookkeeping of the institution, and he might observe with wonder the general lack of those ideals and practices which make for medical advance in the understanding and care and treatment of those who, because of their infirmities and for social purposes, are deprived of their liberty and committed to the care of the institution. At the same time, as an intelligent citizen, he might be able to raise his voice in protest against the travesty of institutional care and treatment, and in that way his efforts might be of value. As a psychologist, supposing he were employed through some misadventure, his functions could not be like those of any other psychologist in the world.

---

[2] One is tempted to ask sarcastically why a physician should be added to the staff of such an institution. He would appear to be an unnecessary luxury.

It is only in those institutions in which there exist the highest ideals of the functions of the institutions toward the community at large as well as toward the individual patient that the psychologist may rightly be employed and carry on work. For the understanding of the possible functions of the psychologist one must seek, therefore, for the ideals of the hospital, one must consider what the most advanced institutions are striving to do, and then we shall be able to discover whether or not there are peculiar functions for a psychologist in an institution for the insane.

The public, or semi-public, institution for the insane has officially the function of caring for, protecting, and treating the special diseases of its patients, and of segregating the patients so that they do not disturb the peace and comfort of other citizens. These funcions are not, however, the only functions of a hospital for the insane, for although not often specified in their charters or in the legislative acts of establishment the hospital exists also to perform other duties and to fulfill other obligations to the community. These duties and obligations are those which refer to the advancement of our knowledge regarding mental diseases, their relationships, their origins, their treatment, and their possible prevention. This means that the rightly named hospital for the insane has as its aim not solely the housing, the feeding, and the treatment of its patients according to current widely-accepted views, but also the scientific attitude of inquiry regarding the nature, the course, and the outcome of the different diseases. It is only in institutions in which the spirit of scientific inquiry exists that the psychologist may have functions apart from those of the physician, and the butcher, and the stenographer, and the host of other employees necessary for the conduct of an asylum.

It is only in those institutions in which in addition to a distinct recognition of obligation to care for the living patient there is also an expressed avowal to do all those things which will enable the institution to care for future patients more adequately in every respect and to serve the community, present and future, to the greatest extent, that a psychologist has a place. In such institutions the advancement of our knowledge of mental diseases is coordinate with the function of maintenance of patients. In them the effort will be made to understand the patients, to discover all that can be discovered regarding the different diseases, and the effects upon the patients of advocated and supposititious therapeutic measures. The physicians in them will not contentedly wait for the knowledge of advance which is being made in other institutions, but they will be ready and anxious to cooperate and to do their part in the investigation of patients so that progress in the understanding of mental diseases may be made. In institutions of this kind investigation which will help toward the analysis of symptoms or conditions, or which may show relationships of genesis, or of effects, or which may give correlations of other kinds, is the goal. In this work of investigation the psychologist has a place on the same plane as the expert chemist, and the microscopist, and the serologist. The functions of a psychologist in a hospital for the insane may, therefore, be summed up in the one word investigation.

This is not the time or the occasion for suggesting specific problems regarding insanity which may be investigated by a psychologist, nor is it necessary to show in what ways psychological investigations by professional psychologists or by others have helped toward an understanding of the abnormal mental processes of the insane. It is more profitable to consider the general relations of the psychologist.

The psychiatrist as a physician is interested in disease forms, in their origins, in their courses, in their delimitation, and in their therapy. In other words, he is concerned with the combinations which are called diseases. His efforts as a physician are devoted to the diagnosis of the diseases and to the treatment of the patients. These interests of the physician are not the only ones he may have, but they are interests which pertain particularly to him as a medical man. In such matters the psychologist, as a psychologist, has little or no concern, and in so far as he exhibits such interest and occupies himself with them does he leave his psychology to wander into the adjoining field of the psychiatrist. But the same patients whom the psychiatrist examines for symptoms which will permit him to make a differential diagnosis and which will indicate to him directions for treatment are at the same time subjects of the psychologist's interest. The psychologist as a psychologist is, however, concerned not with the diagnosis or the genesis of the diseases but with the origin of particular mental events or processes. He busies himself with the possible correlations of the mental states but not with them as combinations which point the way to differential diagnoses. The reasons for the incorrect interpretation of certain stimuli and the subsequent " normal " interpretation are points which he seeks to discover. He also desires to analyze those mental conditions which appear to change from day to day to see whether or not they have direct relations, and he wishes to observe and to compare the behavior of different individuals when subjected to the same forms and intensities of stimuli. The psychologist deals with the same material as the psychiatrist but from a different angle, and in so far as the psychiatrist takes the psychological view-point he leaves his medical speciality for an excursion into the adjoining scientific domain.

At the same time the psychiatrist is chiefly concerned with the possibility of the return of the patient to society. He seeks for means of changing the abnormal methods of function, which are called disease, into the more normal channels which will enable the patient to take up his work, his social duties, and his avocations. The psychologist in his investigations is not concerned with treatment and with cures or recoveries. He is interested in the changes from " normal " to " abnormal " and back to " normal " again, and he rightfully seeks to discover reasons for these changes. He may also investigate the gradual loss of certain mental capabilities, from " normal " to " decrease " to " loss," and may seek to discover means of retarding or of stopping or of altering the character of these abnormal variations in such individuals.

The psychologist's functions are principally to gather descriptive facts, to compare the abnormal with the normal, and when possible, to explain the relationships of specific mental conditions. This work entails not infrequently the investigation of the normal by methods which are applicable to the insane, and he must frequently seek confirmation or disproof of previous work by other methods on normal individuals. At the same time new methods must be devised to meet new situations, for the investigation of conditions which are found in the insane but apparently nor in normal people. Frequently new methods must be applied or devised to demonstrate when possible the relations of peculiar states of the abnormal to similar ones in the non-insane. He may also attempt to produce temporary abnormal conditions in normal people for the sake of determining facts which may help toward an understanding of the more prolonged mental changes which make up a psychosis, and which are produced by exogenous or endogenous toxins, or by other physical or by mental events.

It is not only with those things which, strictly speaking, are to be called mental that the psychologist must deal. Above all he must be an investigator of mental things, and he must follow these wherever they lead. In his investigations of the insane he must be free to wander into the domain of the physical if the mental conditions he investigates appear to have direct relations with the physical. There has been a too frequent tendency of late years to overlook the physical or to push it to the background, or to erect a high artificial barrier against excursions from one side to the other. To the investigations of a psychologist in a hospital for the insane such barriers are harmful because there are ample demonstrations of the mutual inter-dependence of the physical and the mental. If he is to seek for correlations or for explanations, the physiological and the anatomical and the pathological facts must not be considered to be strangers, but they should be met and welcomed; sometimes they must be sought out when they are not at hand, and they must be given their due weight in the consideration of the mental.

In other words, if his work is to be fruitful in the discovery of new facts and new relationships which help to an understanding of the insane, the psychologist cannot be confined to a narrow strip of land, whether this strip be separated from other adjoining fields by wire fences through which he may look but over which he may not climb, or by high stone walls like those of a prison beyond which he cannot see. It is against a narrow view of the functions of a psychologist that we must exert our efforts, and it is because of the narrowness of some of the recent applied psychology that the science is deprecated by more than a few of our psychiatrists and neurologists.

This leads to a more specific consideration of some of the kinds of psychology. The functional and the analytic have too frequently been considered to be antagonistic, and in recent years it has been the fashion to magnify the importance of the functional and to minimize the value of the analytic. This has been done more especially by psychologizing psychiatrists whose conceptions of functional psychology, as judged by their utterances, consist in the frequent use of loose terms and in the grouping of suppositions and so-called facts. To some devotees of the functional psychology the thorough examination of skin and organic sensations in a patient who gives evidence of having somatopsychic delusions may appear futile, since it is assumed that habits of thought, previous mental traumata, and a variety of other mental things are all-sufficient explanations of the delusional state. Critically it appears that by such psychologists the temporal sequence is frequently transformed (as a wish-fulfilment, it may be) into one of cause and effect. The terms psychogenesis, mental conflict and mental mechanism, psychic trend, and a variety of others are used without sufficient analyses of the conditions which they are intended to describe and without a clear definition of these functional terms. This is not to say that functional psychology is valueless. It is only to indicate that in my opinion not all of the so-called functional psychology is of value for the understanding of the insane, and, furthermore, that not all of the so-called functional psychology is psychology. It is probably best that some investigators attempt analyses and that others seek for functional relations, but for the understanding of mental events in the life of the individual both forms of psychology must eventually be used. The kind of psychology is of less importance than that the psychology be scientific.

One other function that a psychologist may have in a hospital for the insane merits brief mention. This is the creation or the advancement of a scientific attitude toward mental diseases in those who are entrusted with the care of patients. Although much has been said regarding scientific medicine, and much effort has been expended to bring about a more scientific attitude in physicians and surgeons, there remains much to be done before the scientific spirit of inquiry and of doubt and of directive effort at advance can be instilled into those who have charge of insane patients. It is, therefore, in his general relations to medical men that the psychologist (but perhaps in this respect not more so that any other investigator) can have a function in a hospital for the insane. By his questions, by his expressions of doubt, by his suggestions of new methods, by his criticisms of loose terms and false connotations, by his enthusiasm, and by his insistence upon the distinction between facts and speculation, the psychologist can, acting through his medical associates, play an important part in the development of psychiatry.

RECOLLECTIONS OF A PSYCHIATRIST.

By JAMES M. KENISTON, M. D.

In May, 1869, I received from Dr. John W. Sawyer an appointment as "assistant physician" at the Butler Hospital for the Insane, Providence, R. I. At this time I was just entering my last year in my medical course at Harvard. The requisitions for a medical degree at that period consisted of two full courses of lectures—on Anatomical Pathology, Anatomy and Physiology, Theory and Practice of Medicine, Surgery and Clinical Surgery, Chemistry, Obstetrics, and Materia Medica, and three years study with a preceptor. There was no entrance examination, and no test of any kind—all who applied were admitted. The lectures began in November and ended in April. On four days in the week we had six or seven lectures a day, and on two days we made a hospital visit with the attending physician or surgeon at the Massachusetts General Hospital. On Wednesdays and Saturdays we attended the operations in either that hospital or the Boston City Hospital. We also had the privilege of visiting the outpatients departments of these hospitals and the Boston Dispensary.

At that time only a fortunate few were able to get any practical hospital training, there being only six internes at the Massachusetts General Hospital, and about the same number at the Boston City Hospital. I never knew how these appointments—for one year's service—were made; but I do know that the appointees were good men. There certainly was no competitive examination.

After hearing the same lectures a second time, one could acquire a fairly good acquaintance with many of the subjects, especially if one did not neglect the ample material for dissections, and paid special attention to the clinical lectures and the autopsies. The hospital visits were not so satisfactory, as there were very many students, most of whom could not get near the patients. Personally, I got on fairly, by selecting—more or less at random—certain cases, and, after ascertaining their location, moving on to the particular bed or beds I desired.

Among the 12 professors whose names were on my diploma, I recall vividly John B. S. Jackson, pathologist, whose dissections I have never seen surpassed. He was an enthusiast, never seeming happier than when he made an autopsy or displayed and interpreted morbid specimens. He was known to the irreverent students as " Morbid John." In the examinations, always oral, for the degree, his was always considered the hardest. I therefore managed to get to his chair first, reasoning that success with him meant probable success along the entire line. He was very kindly, and I have never forgotten his last words, as we changed seats in our progressive examinations. " You have done well, and I am sure you will pass all right. You have my vote."

Like all the other students, I not only was benefited by Oliver Wendell Holmes, but was at all times responsive to his wonderful charm. With him, bones were no longer dry, but things which combined the useful and the beautiful. His lectures and demonstrations were enlivened and illumined by numerous stories, and by spontaneous exhibitions of wit and humor. At our yearly receptions he was the center of an admiring throng, on whom he lavished his charming gift of speech, to our infinite delight and profit.

The third professor, to whom I owe most, if not all, such proficiency as I have attained in diagnosis, was Calvin Ellis. His summary of the symptoms presented by the patients brought before the clinic was exhaustive, and his analysis of them and the differentiation from other possible diseases covered the whole ground. On the single occasion when an autopsy failed to confirm his diagnosis, he said: " I made a mistake, but it was a mistake which ought to have been made, in the present state of medical science." And we cheered him.

We all loved Dr. George C. Shattuck—the good teacher, good doctor, and good man—whose unassuming Christian character and whose kindly interest helped many of us in our effort to season our learning with true manliness. The famous surgeon, Henry J. Bigelow, whose skill as an operator I have never seen surpassed and rarely equalled, held us all. He always was immaculate in appearance, and always operated in a Prince Albert suit. In those days germs were not, but scrupulous cleanliness prevailed. These were the men who deeply impressed me.

In addition to the lectures, clinical and didactic, medical students were obliged to study with a medical preceptor in the interim.

I was fortunate in securing a place with the late Dr. David W. Miner, of Ware, Mass. He had his office in a two-story building on the main street. On the lower floor he had a legitimate drug store, no patent medicines being kept or sold. On the upper floor were consultation and operating rooms, and a completely equipped dental office. I spent all my time for nearly two years with Dr. Miner, except, of course, the lecture terms. We—there were two of us students—were expected to put up prescriptions, and to make all the tinctures, pills, extracts, etc., needed to keep up the stock. In this way we learned our materia medica in the most practical way. We also assisted in filling teeth and making artificial dentures, and we also kept his accounts. After we had made some progress the doctor would take one or the other of us on his rounds. His circuit was very large, and we had a chance to witness the almost infinitely varied emergencies, and the call for rapid treatment with often crude implements, which circumstances often imposed on a country doctor. I once helped Dr. Miner set a very bad fracture of the thigh, and apply splints made from some old fence rails, our only tools a hammer and a pocket knife. This in a country house, some miles away. The result was perfect.

Such then were the lessons and experiences which seemed to justify the superintendent of the Butler Hospital in selecting a youth of 20 years as his assistant. I had taken the two lecture courses, had spent two years with a preceptor, and nearly three months at the summer school, Harvard. In addition to a high school course, and the senior year at Philips Academy, Andover, I had spent two years at Amherst, circumstances preventing me from completing the course. My home training was of the best. I learned to obey, and to perform thoroughly any task assigned to me. My father often said: " When given an order by anyone who has the right to order you always obey promptly, and, if you can, cheerfully, pleasantly, and willingly. If you do this you will deserve success. Also, never be ashamed or afraid to ask questions." I was also taught to be courteous to everyone, and especially to respect my elders.

Although I had two courses of didactic lectures on insanity by Dr. Tyler, superintendent of the McLean Hospital, I had never seen an insane person, as no clinical demonstrations were given, nor had I seen a hospital for the insane. It was, therefore, with much trepidation that I went to Providence—many misgivings as to my prospects. But Dr. Sawyer put me at ease at once. He was not loquacious. His speech was usually laconic, but every word told. His diction was simple, but his vocabulary was large, and evidenced a wide acquaintance with the best literature, ancient and modern. His early tutelage under the famous Dr. Isaac Ray, and a subsequent service of nine years at Madison, Wis., fitted him for the vacancy caused by the retirement of the former. A modest, retiring man, he never sought publicity, but devoted himself wholly to his chosen work. A man of great force and determination, he was also most gentle in manner, " pleasant and kind toward all, yet there was about him, in his speech and actions, a current which could not be misconstrued, and which kept everything in and about the house in thorough discipline."

My predecessor, Dr. Samuel Worcester, remained for two days, to initiate me in the purely mechanical routine of hospital life, and then I was left to make my way as best I could. My duties were many and varied. First, of course, in importance was the care of the patients. During my first year the total number under care was 223, and our daily average was 151, which somewhat exceeded our capacity. In fact we were over-crowded. This was the trouble everywhere, and it still continues.

In 1869 all cases were recorded in large case books, and I devoted several hours daily to the study of the cases present on my entry. This, with at least two routine daily visits to the wards, soon gave me a fairly good working knowledge of the patients. The classification then in vogue was very simple, and vastly different to the more extensive, comprehensive, and systematic scheme now in vogue.

We had the various forms of mania and melancholia—acute, sub-acute and chronic—according to the exhibition and degree of exaltation or depression, and in addition general paresis and epilepsy. We also had a few cases of senile dementia. This rendered diagnosis comparatively easy.

I soon learned that giving a name to a given case of mental disease was relatively unimportant. No two cases of mania, for instance, were alike. Dr. Sawyer always laid great stress on the fact that we had to do with individual men and women who were sick, and not merely with cases. Hence we must always consider the conditions of the body as well as the mind, and also the patient's spiritual state, so far as we could comprehend the latter. He also endeavored to learn the character and endowment of his patients prior to the onset of the psychosis, as well as their heredity and environment. Nothing was too trivial or insignificant to be considered.

As text books I had Bucknill and Tukes Manual of Psychological Medicine, Griesingers Mental Pathology and Therapeutics, and Conolly on the Treatment of the Insane. I also read Dr. Pliny Earle's Institutions for the Insane in Prussia, Austria and Germany. We had the AMERICAN JOURNAL OF INSANITY, the *Boston Medical and Surgical Journal,* and the *Medical Record,* which kept us in touch with current trends in medicine. The reports of the various hospitals for the insane contained an immense amount of valuable information and suggestion. Always an omnivorous reader, I devoured all I could lay my hands on.

After two weeks of hard study and hard work, Dr. Sawyer placed me in full charge of the wards, and I often made my regular rounds alone. He did not believe in a rigid and formal system of hospital service—in regulations and rules as fixed and immutable as the laws of the Medes and Persians. He held me to a strict responsibility for the condition and care of each patient, and required a daily report of any and all patients who were sick, or who manifested any special mental symptoms. But he did not order affairs by clock or gong. Owing to my many duties, of which more hereafter, I made my morning visit when most convenient. I proceeded leisurely, and endeavored to act as if I were making a social call rather than an official inspection. This was easy as the wards were comparatively small. As I became acquainted with my patients and learned their peculiarities and idiosyncrasies, I was better prepared to direct my conversation into appropriate and pleasant paths. Still more important, perhaps, was the knowledge when words were out of season. I did not care for the sick or excited on this round, having already done so immediately after breakfast. The main object of this morning round, and in fact of all our methods, was to make Butler Hospital as nearly like a home as possible.

On this round patients were encouraged to tell of their experiences, report their trials and tribulations, and express their wants.

While we had some indigents, the larger number of our inmates were private patients, and these latter, being in command of more or less ample means, naturally had more wants, real or imaginary. To gratify these whenever reasonable, or to refuse without giving offense, often proved a hard problem. I soon found, however, that perfect frankness and strict truthfulness usually made my way smooth. Nothing is more harmful to an insane person than a lie or deceitfulness.

In dealings with the insane one should not only display the greatest possible tact and consideration, but also know when firmness is required. These requisites are exactly those essential for the treatment of people sick with diseases other than mental, and are those always exhibited by successful physicians. Moreover, infinite patience is necessary, as progress is often slow, with many interruptions. Above all, one should not only feel but manifest the feeling of genuine kindness and love, as well as sympathy, hopefulness, and encouragement. Finally, one must really love his work.

In endeavoring to acquire and practice these qualifications I found in my chief the greatest assistance, the largest inspiration. When he saw me perplexed or disheartened, as I often was, he would say the one word needed, or perhaps only smile at me. But above all he made me feel that he trusted me. On rare occasions he would come to the office late in the evening and for an hour or more narrate to me his past experiences, or the doings of the leaders in our specialty, his whole discourse enriched by appropriate anecdotes and quotations. At such times he also gave me needed advice and counsel and encouragement. These interviews have always dwelt in my memory.

Dr. Sawyer was always dignified and courteous. In the discipline of the house he never resorted to petty maneuvers nor did he ever allow constant nagging of the attendants and other employees. Nothing takes the heart out of one so completely and quickly as continual fault-finding. He inspired his subordinates by encouraging them, teaching them the value and the necessity of co-operation, and now and then uttering a word of commendation.

At this period, notwithstanding the teaching and practice of Conolly, Tuke, and others, mechanical restraint was still in vogue at Butler, as throughout the whole country. At Butler, however, it was reduced to a minimum, and was mainly used on patients who were either liable to injure or maim themselves, or in cases of extreme manic excitement. For example, one man with a broken leg constantly removed the splints, when his hands were free. He therefore wore a leather muff, which was fastened by a broad belt at the waist, and buckled behind, until the bone was firmly united. He could move his hands freely within the muff, but could not release them. At no point was there any constriction which would embarrass the circulation. Another patient was continually picking at her face and eyelids, causing unsightly and even dangerous sores. She therefore was obliged to wear soft thick flannel mittens, so arranged with a belt that she could not life her hands to her face. Often weeks and even months would elapse without any mechanical restraint. It seems unnecessary to remark that special care and nursing were given to patients in restraint.

We employed very little " chemical restraint "—narcotics and hypnotics being sparingly used. We occasionally gave a dose of opium or hyoscyamus which " was the only narcotic worthy of confidence as a substitute for opium." We also tried the bromides, but will little success, except in epilepsy. A favorite recipe with us was the old fashioned " red mixture " which contained the alcoholic extract of conium and the carbonate of iron. About the year 1869 chloral first came into use, and I first began its use on August 15, 1870, in the quantity then universally recommended, viz: from 30 to 60 grains a day, in divided doses. This caused a sound, refreshing sleep of six to eight hours. To-day I would not dare to give such quantities. But then I had no unfavorable results. I embodied my experience with chloral in my graduation thesis, which, to my great surprise but deep satisfaction, was published by the Medical Faculty in the *Boston Medical and Surgical Journal.*

Our treatment did not demand the excessive use of drugs. We employed the usual tonics, laxatives, etc., when indicated, in addition to the sedatives already mentioned. We laid more stress on suitable diet, baths, fresh air, sunshine, exercise, and above all the so-called and rightly named " moral treatment." This included all kinds of healthful occupations, especially out of doors, suitable and varied diversions, special entertainments, and religious services. As I could play on the piano and organ in an amateur way

I took charge of all the music. For nine months in the year we had the patients gather in the chapel on Tuesday and Friday evenings. On the former I gave an hour or more of readings. The first half hour was devoted to some instructive work, which was continued for successive weeks until finished. One book I recall was " Our New Way Round the World." Next came one or more poems, and finally some stories, usually of a humorous or diverting content. The patients often selected the poems and stories. At the beginning and end of each evening, as well as in the intervals between the parts, I played a piano solo.

On Friday evenings I gave a stereopticon lecture from our large collection of pictures. I made the oxygen gas myself, and instead of hydrogen used ordinary illuminating gas. These gases were contained in large, wedge-shaped rubber bags, kept in place by wooden frames, on each of which was placed iron bars of about 150 pounds weight. One evening, after the patients had left, I was inspecting and trying out the tubes, which had not worked satisfactorily, when the hydrogen bag exploded, throwing me about 12 feet into the corner of the room. I escaped without a scratch or bruise, although I was stunned and absolutely unconscious for about five minutes. One of the bars of iron was found within 10 inches of my head. The necessary repairs to the chapel postponed further entertainments for some weeks. Thereafter the gases were kept in galvanized iron tanks a long way from the chapel, and conveyed by metal pipes to the lantern.

Religious services were held on every Sunday evening. Dr. Sawyer read prayers and the sermon, while the choir, composed of employees and patients, furnished appropriate music. I held a rehearsal on Saturday evenings, as many of the choir could not read music, and by persistency we finally gathered quite a repertoire of church music, including a few simple anthems which we gave on special occasions. These services, simple and unpretending, were greatly enjoyed and appreciated by the patients, and in fact by the entire household. Since my day various local clergymen conduct these services.

Other sources of benefit to the patients may here be mentioned. Ray Hall, so named in honor of the first superintendent of Butler Hospital—the famous Dr. Isaac Ray—with its museum, billiard table, bowling alleys, etc., was in use on every week day. A large and carefully selected library, to which annual additions were made from a library fund of $1600, was well patronized. On frequent occasions a carriage was used to convey patients about our beautiful and spacious grounds. Walking parties were numerous. The hospital faced directly on the Seekonk River, which at this point broadened out into what was practically a small lake. The main road was far away—out of sight—in the rear, and we were seldom annoyed by curious intruders. A delightful feature was the "Grotto," in a ravine left largely unadorned except by nature. Through this ran a brook, which in a suitable location about midway between the highway and the Grotto, was dammed, forming a pond of about one acre. There were several groves of beautiful trees, many of them very large.

To make effective both the medical and moral treatment we endeavored to carefully select the men and women who should have the immediate care of the patients. At this time all of these were called attendants, this custom prevailing even to-day in some hospitals. None of them were called nurses. They acted as nurses and ward maids or orderlies. They scrubbed floors, served meals, and in short had a host of functions and duties entirely apart from attending. To those familiar only with the scientific hospital of to-day (I am of course referring to hospitals for insane) such methods would be abhorrent, and they would not believe that satisfactory results would follow. But they did. Somehow or other, many of these attendants did noble work, and our proportion of recoveries and improved need not fear comparison with those of the present time. The modern training-school for nurses had not appeared, and, so far as I knew, had not even been contemplated. One reason, in my opinion, why we got such good results was the fact that each attendant had only a small number of patients to care for. In the acute service we averaged one attendant to four or five patients. Again, we had two mature and efficient supervisors, who like the attendants, lived on the wards both day and night. Finally, the writer spent several hours daily on the wards, and often joined the card parties on the free evenings. Nor must I forget how Dr. Sawyer daily appeared here and there, entirely apart from his regular official visits.

One would suppose it would be difficult to find, still more so to hold attendants for any length of time. This was not the case.

Many, very many, of our attendants had been at Butler for years, and some were still there when I left. We always had a large waiting list. The greater number of our attendants came from Maine, and very capable and as a rule thrifty they were. It was said of one particular town that every boy and girl looked forward to hospital work for a few years in order to accumulate a modest capital which would enable them to buy a farm or start some kind of business. I managed to keep track of many of them in after years and was glad to learn that they were prospering. I know of some families in this particular town where three generations have engaged in this line of work. In my present location I have had two brothers and two sisters in charge of the wards under my care. All of them are living, happily married, and prosperous. These men and women were usually shrewd and typical people of the old-fashioned New England type. They were willing workers, eager to learn, and were soon taught all the essential elements of nursing the sick, which need no description here, as they are well known to the laity. While I had only minor surgery during my tenure, I did have quite a number of severe medical cases, such as acute articular rheumatism, pneumonia, tuberculosis, and so on, and in every case the patient was well and properly nursed. The clinical thermometer had just come into use, and I had bought Wunderlich's book. Very soon these nurses could use the thermometer and record its readings as well as they could count the pulse and respiration. As I dwell on those days of long ago I must repeat that our attendants as a rule developed marked ability in the care of the sick. I must also say that I believe thoroughly in the modern properly managed training-school for nurses in all hospitals for the insane.

I may now enumerate some of my many duties at the Butler Hospital. In the first place all the accounts, except the banking, fell to me. I received all new patients and entered their names in the proper books. Our system of bookkeeping was simple but clear. In our " scratch book " every transaction or obligation was entered, to be recorded in the journal at the end of each day, charged to the proper accounts, and finally transferred to the ledger. Every day, in addition to the standard supplies—the commissary department—we had numerous articles purchased for the private patients, such as books, haberdashery, delicacies, etc.

These all had to be entered on the patient's personal accounts. Every three months bills had to be rendered for each patient, and copied in a special book by letter press. On the expiration of each quarter I had to prepare a trial balance, which was duly inspected and verified by the auditing committee and treasurer. When the accounts were approved, I was allowed a vacation of three, and, in one instance, four days.

In those days tablets, triturates, and capsules were not, and very few pills were kept in stock by druggists. We had a comparatively small "medicine closet," which I was expected to keep supplied. I made up most of the tinctures, solutions and extracts, and even rolled pills on occasions. A tray containing small tumblers of the medicines prescribed went out to each wing three times a day. Very little alcohol in any form was given, and that usually to a few very old and feeble patients. In fact, we used very small quantities of drugs, relying chiefly, as said before, on hygiene, exercise, and moral treatment. Hence my duties as pharmacist were not arduous, my experiences with Dr. Miner having made me a comparative expert.

Another duty was to take out parties in the carryall for occasional drives about the grounds. I usually made three trips in the afternoon. On occasion Dr. Sawyer relieved me in this. These trips were made once or twice each week. I also drove to town two or three forenoons each week to make purchases for the house or the patients. In these trips I was often accompanied by the matron, who always provided for the wants of the female patients. Either Dr. Sawyer or I went to town every week day to get the mail.

It was my duty also to distribute and send to the wards all mail matter, and to censor every newspaper, magazine or other literature. I had to cut out all death notices, murders, acts of violence—in short all crimes and anything else which might excite the patients, and either hinder their recovery or increase their irritability or depression! The papers looked like a coarse sieve by the time I had finished. This task was hateful to me, and I received much hostile criticism from the patients affected by this censorship. I would not have minded this, had this antiquated method been effectual. On the contrary many reports of deaths and crimes reached patients in some way or other, perhaps through visiting friends. We also tried to conceal the deaths of our inmates, thus causing all sorts of horrible conjectures to those left behind. At that time I *felt* we were making a mistake, and now I *know* it. Except an untruth, nothing is so harmful to an insane person as the attempt to conceal from him matters which are liable to happen at any time. Now, as for many years past, whenever one of my patients passes away, I notify all the other patients on the ward, and explain the nature or name of the illness which caused death. I was led to this by the following incidents: A young woman died of pneumonia, and we endeavored to have the body removed surreptitiously. A few days after a patient said to me " Did you kill —— and cut her head off? Last night I heard her head bumping and rolling down the stairs and you said, ' I've got Mary's head, now roll down another.' "

Later, in another building, I was unable to find a nurse on a certain ward. The entire ward was apparently deserted. Finally I heard a voice from a dormitory. " Is that you, doctor? Miss T. has gone to lay out Jane ——. They have locked us all up in this dormitory, and think we don't anything about it, but we all do." Further comment seems superfluous.

Another duty was to help amuse or interest patients in ways entirely different from the stated entertainments, and to act as instructor. I taught the use of wands and grace hoops, outlined methods of study or courses in reading, visiting often the comparatively small number engaged in mechanical pursuits—farm, garden, sewing-room, etc., and often took some of the men on special " hikes."

I also had to furnish a daily weather record. Morning, noon and night I recorded the wind, temperature and barometer readings, and measured the rain or snow when we had any. These records were tabulated once a month, and were printed in the *Providence Journal.* They were often found very valuable.

Perhaps a description of one day's routine may be of interest. Rising bell at 6.30 a. m., breakfast at 7 a. m. At 7.30 a. m., preparing and sending out medicines and attending to the sick. 8.30 a. m. to 10.30 a. m., regular morning rounds, making out bills, answering letters, or writing in case books, often interrupted by visitors who inquired about the patients' condition. About 10.45 a. m., drive to town—three miles—with matron, to hunt up help, purchase goods and so on. Get the noon mail, reach hospital on our return at 1 p. m. Distribute mail, mutilate newspapers, etc., until 1.30 p. m. when we had dinner. After dinner, office work for two hours, and then drives about the grounds—usually taking three trips. From 5 to 6 p. m. I had usually some leisure, which I devoted to my medical studies. At 6 p. m. we had supper, after which I tried to get a short walk. From 7 to 10 p. m., keeping office, where I often found much work to do. If no hospital work was at hand I studied until 9 p. m. and then read for an hour for recreation. It is almost needless to state that in 10 minutes after I left the office for the night I was sound asleep. I needed all the sleep I could get.

Nevertheless my long and busy days did not exhaust me. My work was so varied, my health so perfect, my enthusiasm so permanent, my surroundings so agreeable, the food so excellent, and my joy in service so genuine, that I always felt happy and strong. Dr. Sawyer was as busy, for as many hours, although in a different way. It was a real pleasure to work for and with him.

I may unintentionally have conveyed the impression that I did nothing but work, that there was no time for play. Now seems the proper occasion to describe some of my recreations and pleasures.

First of all I had a large library of well-selected books at my disposal, and I had access to the Athenaeum, where I spent many pleasant and profitable hours while waiting for the matron to finish her errands in town. Occasionally I would spend a whole afternoon there. I always took a long look at Malbone's famous miniature of "The Hours." I read the leading English and American reviews and magazines. Here I found much of my material for my readings to patients.

In the next place my slight knowledge of, but intense love for, music afforded me both pleasure and profit. One of our patients was a proficient and accomplished pianist, and he gave me valuable instruction. His reportoire was very large, ranging from Bach and Beethoven to Weber and Wagner. When in the mood he would play for me by the hour, especially on Sundays, when my only duty apart from my rounds was the evening service. I shall never forget his interpretation of Beethoven's sonatas, many of which he played from memory. Thus my two great and abiding hobbies—literature and music—had full scope.

Another man—a paranoiac—had his own private library in his room, and, as from the beginning he took a liking to me, I had the benefit of his remarkable erudition and culture. He had his meals in his room, as he would not associate or even converse with any of his fellow-patients and attendants. He introduced me to the English poets and essayists, as well as to many of the great masterpieces of the most noted and learned divines. He was an ardent and devoted churchman, and on Sundays he would only read or talk about the works of the leaders. I cannot recall all the books he induced me to read, but I know I specially enjoyed, and do to this day, Keble's "Christian Year," and Jeremy Taylor's "Sermons" and "Holy Living and Dying." On rare occasions he would consent to go out doors, and then we would take long walks into the country.

On Sundays I often attended the morning service at the Central Church, where I was sure of a good sermon and fine music. I also occasionally attended social affairs during the week—but only occasionally, and on one never-to-be-forgotten evening I heard the Thomas Orchestra. When I found I could go, it was just one-half hour before the performance, and as there was not time to have the carriage sent up, I ran the entire three miles, arriving just as Thomas raised his baton, and his orchestra began the Fifth Symphony.

In the fall of 1869, I had to transfer a patient to the Government Hospital for Insane at Washington. A veteran of the Mexican War, a courteous gentleman of the old school, he said as we started, "If you will treat me as a companion and not as my keeper, I pledge my word of honor I will cause you no trouble, and will not attempt to escape." I agreed, and he kept his word. Provided with ample funds, and instructions to humor the general, we took the night boat for New York. In the morning we had breakfast at Delmonico's, and then had a carriage drive through Central Park. After lunch we called on one of the general's relatives, who gave us tickets for the afternoon concert of the Philharmonic Society. We made some more calls, had a late dinner, and then took the night train for Washington. We reached the hospital in time for breakfast. I spent the day in inspecting the hospital, White House, Capitol and Smithsonian. On my return I spent a day and a half with Dr. Isaac Ray, at his home in Philadelphia. I was glad to find that this very learned man and profound thinker was also fond of " a little nonsense now and then," and a well-worn copy of Lear's " Nonsense Book " was lying on his library table. In the evening his son took me to hear Thomas' orchestra.

One of my greatest pleasures, in addition to my daily companionship—for such it was—with Dr. Sawyer, was my opportunity to meet some of the most eminent alienists of that period. Dr. Isaac Ray made several visits to Butler Hospital, and I had many interviews with him. At this time he was about to issue his Medical Jurisprudence of Insanity. I also met Drs. Kirkbride, Butler, Nichols, Walker and Godding, and profited by their wisdom and counsel. All these have passed away, but their names are emblazoned in the annals of psychiatry, and are held in grateful remembrance by the few now living who had the privilege of knowing them. Their annual reports are alive and fresh and helpful even to-day. It was my loss that I never met Drs. Woodward and Earl.

As I look back on those days, I find I have forgotten most of the uncomfortable or disagreeable things which inevitably accompany a life among the insane. Some dangers there were, and once I nearly lost my life at the hands of a dangerous maniac. What stands out with increasing clearness each year is the fact that I found my greatest pleasure in endeavoring to render service, and that I left at the close of my more than two years of office many kind and true friends.

My association for nearly four years with Drs. Miner and Sawyer proved invaluable to me on engaging in general practice. I had learned to meet " all sorts and conditions of men " ; to cultivate tact, patience, and forbearance ; to sympathize with the afflicted ; to control my temper, naturally fiery ; to obey and to command ; and to submit more or less cheerfully to restrictions often onerous. Although then, and even now, prone to periods of depression, on the whole I became an optimist, and such I still remain.

Finally, my experience at Butler Hospital enabled me to supplement my practice by many consultations in cases of mental disorders, which proved interesting as well as financially profitable, as no other physician in Cambridge had any practical experience with the insane.

DANGERS OF THE CONTINUOUS BATH.

BY WILLIAM A. WHITE,
Superintendent Government Hospital for the Insane, Washington, D. C.

I am prompted to write these few words of warning by having recently noted that in a sister institution a patient was scalded to death in the continuous bath. It is not altogether clear from the account that I saw of this accident what happened, but I suspect very strongly that the patient was fastened in the tub and during the few minutes' absence of the nurse to attend to pressing duties elsewhere the water suddenly raised in temperature and she was unable to escape. This brought home to me in a most emphatic manner what I believe to be an entirely wrong practice which has grown up in connection with the continuous bath.

In my visits to the various institutions I have noted, I might almost say, a universal practice of fastening the disturbed patient in the tub. There are various devices for doing this, the most common one being the canvas sheet which is fastened over the top of the tub, usually by straps which go under the bottom and are therefore inaccessible to the patient. Another method which I have seen is by the combination of canvas sheet and camisole, the sheet fastened over the tub and the camisole receiving the arms of the patient. Any of these devices make such an accident as I have above mentioned a possibility. Devices for securing even temperatures of water are apt to get out of order and cause the water suddenly to heat, and if contemporaneous with this the nurse should leave the room, and sometimes she is forced to by circumstances even though instructed not to, an accident may happen. I think the only adequate precaution to take against this type of accident is to insist that *under no circumstances is a patient to be fastened in the continuous bath.*

The practice of fastening patients in the tub has grown up naturally. Disturbed patients make a great fuss at first in getting into the bath, splash the water about, pull the plug, and in general make that sort of disturbance which suggests their being restrained. We have been using the continuous bath at the Government Hospital, however, for a number of years and we have never used restraint, and do not permit it under any circumstances; still we bathe all of the various classes of patients that are received in any hospital—the acutely disturbed, confused and delirious patients that require this sort of treatment. I am therefore convinced that restraint under these circumstances, aside from being dangerous, is unnecessary.

If, however, restraint is not resorted to it will require considerable patience and some tact to handle disturbed patients when the continuous bath is first used. In other words, if we would do away with a crude and useless device, which is nothing but a makeshift and an excuse for a lack of exertion, something has to be done, some patience, some intelligent effort has to be exercised, and of course this is the price that has to be paid if we are going to deal with the matter more efficiently.

When the patient is first taken to the continuous bath, and is very much disurbed, it is often necessary to have two or three nurses to help get him into the tub. Sometimes he will not stay there. Under these circumstances it is not well to insist too strenuously, as the patient does not always understand what is expected. Make the effort for perhaps 20 minutes and then drop the matter and try it again, either later on the same day, or perhaps not until the next day. As soon as the patient realizes that he is not going to be injured or drowned, or that something terrible is not going to happen to him, he will usually take to the bath kindly; and when he once experiences the soothing effect of the warm water he is generally pretty glad to remain in it. This may take three or four days of, so to speak, educational training, but it is worth while not only to avoid the sort of accident that prompted this article, but also it is better for the patient than it is to overpower him and tie him up in a situation which he does not understand, and which often terrifies him and therefore ruins the whole effect of the therapeutic measure.

Neither should so much stress be laid upon patients not getting out of the tub. A disturbed patient, if left to himself, will often get out of the tub and run about the room in a typical maniacal fashion, but he does not have to stay out of the tub but a very few moments when he becomes chilled and uncomfortable, and as a rule is glad to get back into the water. If he is left alone, in the great majority of cases, he will go back of his own accord in a few minutes, and this should always be tried rather than an attempt made to force him back, thus starting a conflict between the patient and the nurse.

With women patients, especially in hospitals where there are male physicians in charge, and even otherwise, depending upon the case, it is well that they should be partly clothed, either in a light undershirt or chemise that comes down to the knees, or in a nightgown. This can be supplemented, if desirable, by taking an ordinary sheet and throwing it over the top of the tub so that the patients feel that they are not exposed, even though they be compelled by their excitement to get out of the tub.

I have also noted in this connection a practice, which I hope this article may help to counteract, among manufacturers who furnish continuous bath outfits for hospitals. The literature which they send out and which contains photographs, shows the use of restraint apparatus. Inasmuch as the continuous bath is being constantly installed in institutions which have had no previous experience or knowledge of it, I have no doubt that this method of advertising has had largely to do with its use. Manufacturers are undoubtedly anxious to provide what is wanted and what is best, and I am sure that if they can be made to understand the real danger of the use of restraint they will cease to advertise in this way.

In addition to the absolute rule that no patient is to be restrained, we have recently installed at the Government Hospital regulating valves in connection with the continuous baths which are permanently and unalterably set so that no water can be admitted to the bath at a temperature higher than that for which they are set. These valves we set for a temperature of 110° F. The principle upon which they operate is a simple one and it would seem that they are very safe. However, all mechanical contrivances are apt to go wrong at some time, and although they afford an added safety, still the nurse should never be permitted to leave the room, and should gain her knowledge of the temperature of the water from a bath thermometer and from frequently plunging her hand and arm into the bath. It is also highly desirable that the continuous bath-room should be so located that the nurse would not be under any temptation at any time to leave it nor be subject to call.

Of all these precautions, however, the fundamental one and the most important is that the patient should not be restrained, because no person, no matter what their mental condition, unless they are seriously crippled, will scald to death in a bath tub provided they are free to get out. Even the most actively excited and confused will jump out of the bath tub if the water is hot. The reaction is too deeply biological to be seriously disturbed by mental clouding.

THE TREATMENT OF PARESIS AND TABES DORSALIS BY SALVARSANIZED SERUM.*

(CONCLUDED.)

By HENRY A. COTTON, A. M., M. D.,

Medical Director, New Jersey State Hospital, Trenton, N. J.;
Consulting Neurologist, Mercer Hospital, Trenton, N. J.

ABSTRACT OF CASES—GROUP 2.

CASE 4.—*A. H. (see Chart 12). Male, age 46. Married. Four children. A farmer. Tabetic-expansive type. Duration about four months. Twenty treatments Swift-Ellis, five treatments O. M. Result good, with some defect, unable to live at home. Some lack of judgment. Modified process, stationary case.*

Paresis in a married man, age 46, with negative family history and nothing unusual in personal history. Has four children, all healthy. Wife had several miscarriages. Up to date farmer, but somewhat odd.

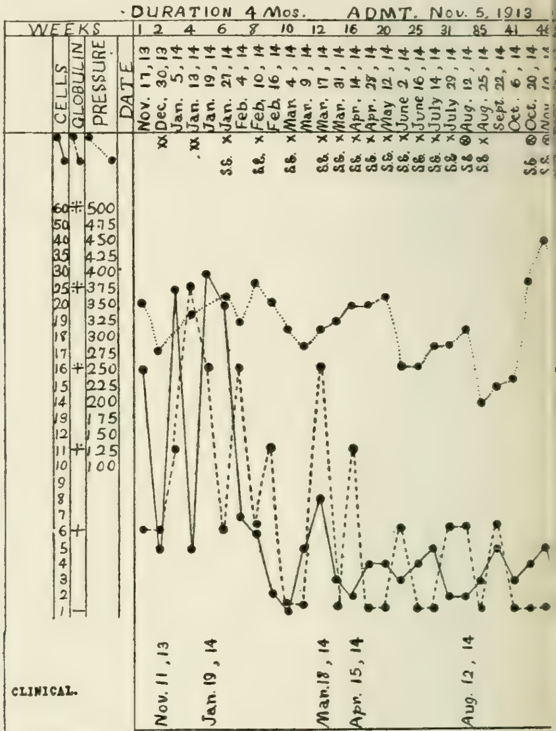
Onset.—Sudden, about four months before admission. Marked change in habits and disposition, peculiar conduct and marked extravagances. Marked change of disposition. Admitted to the hospital November 5, 1913, and on admission mentally was somewhat euphoric, with impaired orientation. He exhibited marked absurd expansive ideas. Memory was defective for both recent and remote events. Personal identification, school knowledge and calculation were good. Absolutely no insight.

Physically.—Poorly nourished man, with typical paretic facies. Pupils do not react to light. Knee jerks absent. Markedly impaired motor functions, some incoordination. Characteristic speech defects, unsteady gait, swaying in Romberg position, and defective writing.

Progress of Case.—Gradual improvement after four treatments. The first two treatments were intraspinous and heterogeneous serum was used, *i. e.*, that from another patient who had been given intravenous injections. He did not show any marked improvement until the regular S.-E. treatment was given. The mental symptoms soon disappeared, lost his expansive delusions, memory became better, he became well oriented, but still retained a moderate degree of euphoria. He developed *good insight* into his condition. While in the hospital his wife was admitted, suffering from a maniacal attack of manic-depressive insanity. He showed but little interest in her condition and did not care to see her.

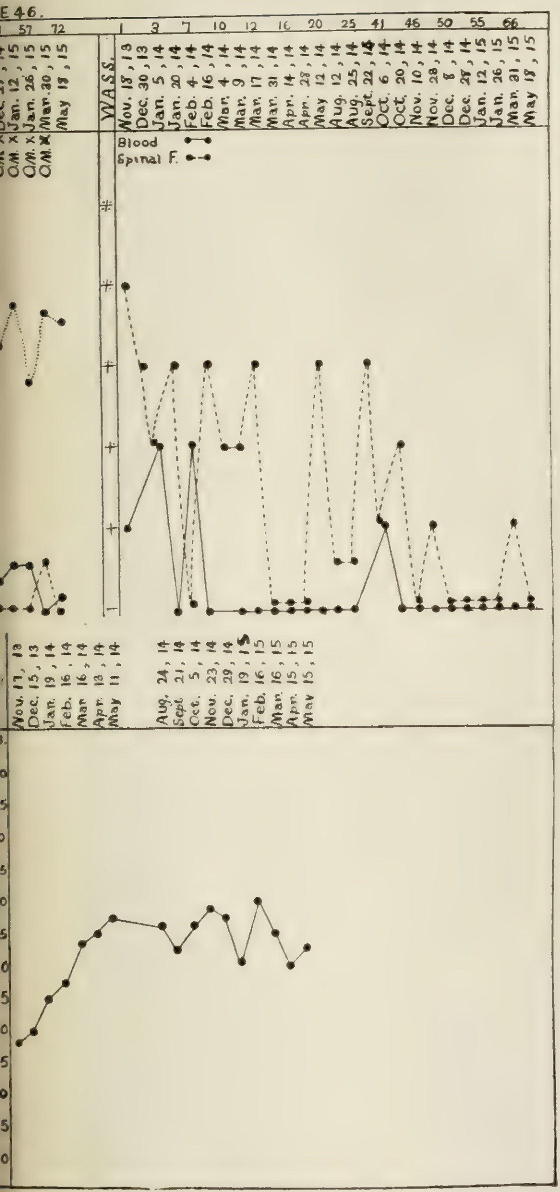
---

* Read in abstract at the seventieth annual meeting of the American Medico-Psychological Association, Baltimore, Md., May 26-29, 1914, and further enlarged.



CLINICAL.	Nov. 11, 13	Jan. 19, 14	Mar. 18, 14	Apr. 15, 14	Aug. 12, 14
Delusions	xxx	x	O	x	x
Hallucinations	?	O	O	O	O
Memory	x	O	O	O	O
Attention	x	O	O	O	x
Orientation	x	O	O	O	O
Pers. Identifi	O	O	O	O	O
School knowl.	O	O	O	O	O
Calculation	O	O	O	O	O
Euphoria	xxx	x	x	x	x
Insight	xxx	O	O	O	O
Mood	xxx	x	O	O	O
PHYSICAL.					
Nutrition	x	O	O	O	O
Pupils	xxx	xxx	xxx	xxx	xxx
Taste	O	O	O	O	O
Smell	O	O	O	O	O
Cut. Sensibil.	O	O	O	O	O
Absent Kj.	xxx	xxx	xxx	xxx	xxx
Exaggerated Kj.					
Motor Function	xxx	x	O	O	O
Tremor	xxx	x	O	O	O
Speech	xxx	x	O	O	O
Gait	xxx	O	O	O	O
Convulsions					
Romberg	xxx	x	O	O	O
Writing	xxx	x	x	O	O

CASE 4. CHA


E 46.
57
72
O.M. x Jan. 12, 15
O.M. x Jan. 26, 15
O.M. x Mar. 30, 15
May 13, 15
WASS.
1
3
7
10
12
16
20
25
41
46
50
55
66
Nov. 18, 13
Dec. 30, 13
Jan. 5, 14
Jan. 20, 14
Feb. 4, 14
Feb. 16, 14
Mar. 4, 14
Mar. 9, 14
Mar. 17, 14
Mar. 31, 14
Apr. 14, 14
Apr. 28, 14
May 12, 14
Aug. 12, 14
Aug. 25, 14
Sept. 22, 14
Oct. 6, 14
Oct. 20, 14
Nov. 10, 14
Nov. 28, 14
Dec. 8, 14
Dec. 27, 14
Jan. 12, 15
Jan. 26, 15
Mar. 31, 15
May 17, 15
Blood
Spinal F.
Nov. 17, 13
Dec. 15, 13
Jan. 19, 14
Feb. 16, 14
Mar. 16, 14
Apr. 13, 14
May 11, 14
Aug. 24, 14
Sept. 21, 14
Oct. 5, 14
Nov. 23, 14
Dec. 29, 14
Jan. 19, 15
Feb. 16, 15
Mar. 16, 15
Apr. 15, 15
May 15, 15

. A. H. G. P.

Physically, he improved greatly, weight increased from 115 to 137 pounds. He lost his paretic expression, took more interest in his surroundings, helped about the ward and dining-room. All physical signs disappeared except stiff pupils and absent knee jerks.

In April, 1914, he again developed absurd ideas, wanted to take about 800 of the patients to South Jersey to work in the glass works. Thought they could work well enough and become self-supporting. Unable to see the absurdity of his ideas. This showed marked lack of judgment, but he retained good insight into his mental condition. He continued to improve, and in September, 1914, gave up his absurd delusions laughed about them, showing good insight into the same. In November, 1914, he was allowed to go home for a visit with his wife in order to test the degree of recovery. He soon showed lack of judgment in managing his farm, wanted to be doing something all the time. Same extravagances noted—wanted to buy several teams and plough all the fields. He tried to run the farm as he had formerly, but was incapable of doing so. He was quite good-natured, except that he wanted to have his own way. He also developed sexual activity, which had disappeared before admission to the hospital, but was denied by wife. Became irritable at this refusal, and upon the advice of physician was returned to the hospital. He came back willingly and wanted to undergo further treatment.

The progress in this case is fair. He has not demented during this time, but has improved in every way. Still shows lack of judgment, and it is possible that he may always have this defect, although able to live outside. Treatment is continued.

Treatment and Biological Reaction.—This patient has had 16 Swift-Ellis treatments extending over ten months, and with exception of several doses, received full dose of neo-salvarsan intravenously. His first two treatments represented by XX under December 30, 1913—January 13, 1914, were intraspinous treatments with serum from another patient treated intravenously with neo-salvarsan. This exerted a very unfavorable effect upon the cell count and globulin content, as can be seen by the chart. The cell count jumped from 5 to 25, then dropped to 5 again. After a second similar treatment the cell count again jumped to 30 and did not fall to normal until after the next regular S.-E. treatment. The globulin also rose from + to + + +, then fell again after the second treatment. The Wassermann reactions were not particularly affected. This peculiar reaction was seen in all cases where a heterogeneous serum was given (notably case 14), and this method was promptly discontinued. Since then the cell count has reached normal, several times giving the dose regularly, but since March it has been well within normal. The globulin content has varied somewhat, but has been negative since September 22, 1914. The Wassermann reactions in the blood became negative after four treatments, falling from +, and on only one occasion going to ±. The spinal fluid Wassermann has varied greatly, dropping from + + + to negative, or varying from + + + to negative, but has shown a tendency to remain near the negative, at present.

After the experience on visit to his home he was given a treatment according to the Ogilvie method.

Discussion.—This is a comparatively early, but rapidly progressing case. Although the duration was but six months before treatment was begun, the disease had progressed much farther than the time indicated. He presented all the symptoms of a well-advanced paretic. Under treatment there has been marked improvement, both mentally and physically. It is one of the tabetic cases treated which have not shown complete remission. He is now a quiet, orderly patient, somewhat apathetic, but a good worker daily in the dining-room. He is well oriented and memory is good and he also has a fair insight. He can be regarded as a modified or stationary case.

CASE 5.—*E. R. (see Chart 13). Voluntary commitment. Male, age 46, married. Tabetic-expansive type. One year's duration. Apparently demented. Rapid improvement after four treatments. At home, in normal condition for six months, after eight treatments. Result good. Apparently an arrested case. Further treatment advised. Swift-Ellis treatment.*

Paresis in a married man, aged 46, with negative family history and uneventful personal history. Occupation, lithographer on newspaper. Onset sudden, one year prior to admission. Wife thought he was overworked. Took a trip to Chicago. Got off train at wrong station and was lost for three days. Amnesic period for this episode. Unable to go back to work. Became expansive and violent. Wife took him to live on farm with male attendant. Untidy in habits and apparently demented. Admitted as voluntary patient February 4, 1914. On admission talked in an incoherent, disconnected manner, with markedly expansive delusions. Disoriented for time and place. Demeanor indifferent, contented and unoccupied. Untidy in habits. Difficult to interrupt expansive stream of thought. Would not respond to questions. Disoriented for time, place and persons. Memory defective. Calculating ability markedly affected. Writing poor. Unlimited amount of wealth, billions and trillions, absurd expansive ideas, that he invented everything in the world, that he planted everything from gold dollars to rocking chairs, and has them growing, that the chairs came out of the ground perfect and painted brown. Marked euphoria. Mentally he was a typical expansive type of paresis.

Physically.—Defective nutrition. Weight 145 pounds. Pupils stiff to light and accommodation. Defective taste and smell. Absent knee jerks and Achilles reflex. Motor functions impaired. Marked tremors of hands and tongue and facial muscles. Speech slurring. Writing defective. Very unsteady gait, and swaying in Romberg position.

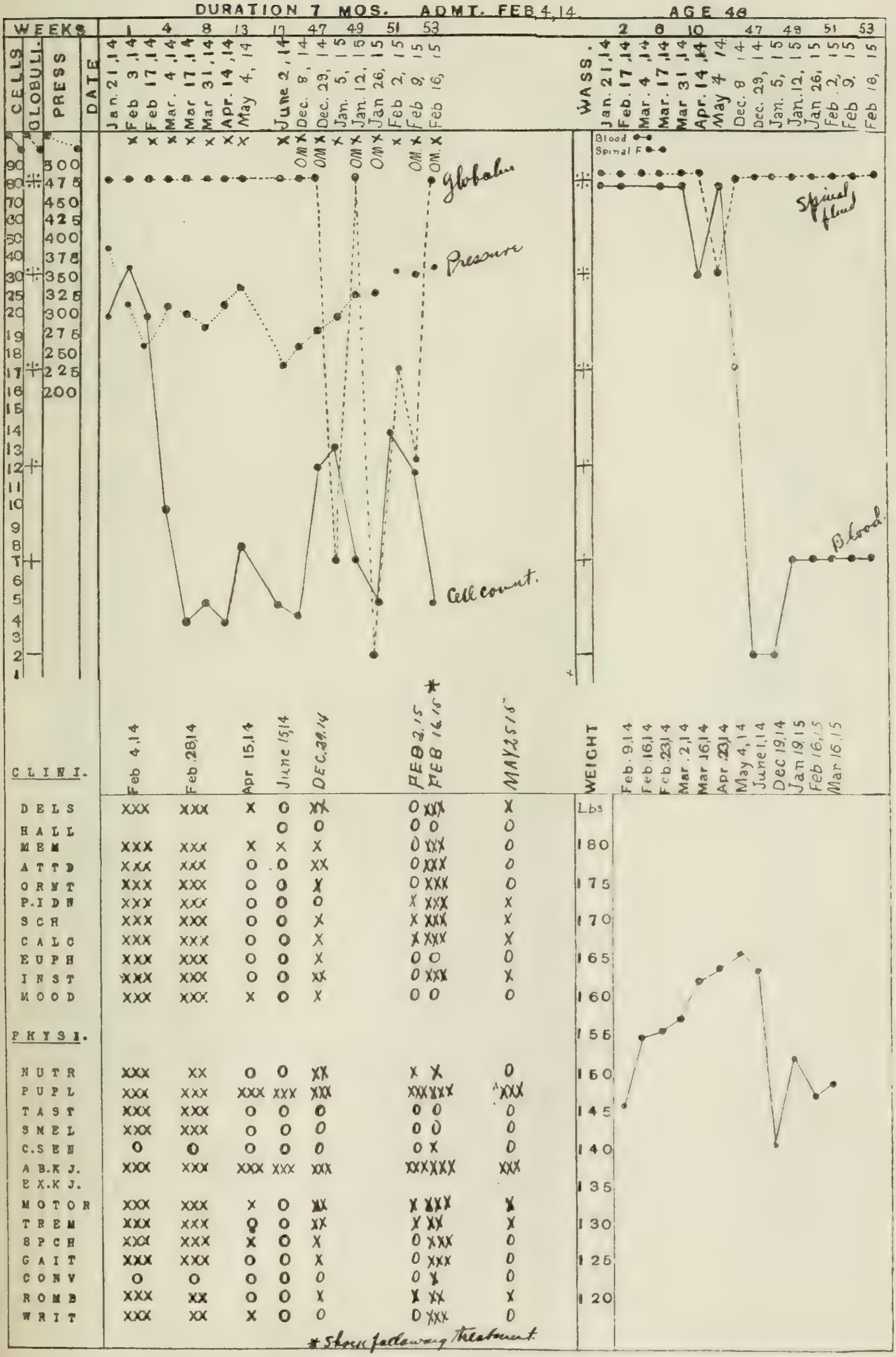
Progress of Case.—No especial change in patient until after four treatments, two weeks apart. From an apparently demented, untidy, helpless paretic, who had to have a special attendant, he gradually began to take some interest in his surroundings. He occupied himself with reading and talking to others. His expansive delusions gradually disappeared at first, only elicited upon questioning, when previously they were spontaneous and never-ending; gradually they disappeared entirely and he showed good insight. He became tidy in habits, dressed and undressed himself, and was able to leave the hospital April 16 with an attendant. He came back for three more treatments at monthly intervals; he had no treatment between June 2, 1914, and December 9, 1914. He was able to return home without an attendant, and lived at home since that date, apparently in a normal condition. His wife has been repeatedly warned to return him for observation and examination, but he was in such good condition that he refused to come.

This case showed the most startling transformation of any case in the series. From a helpless and apparently demented paretic he became a normal individual, able to care for himself and live at home, but has not taken up any active occupation, because it is not necessary. He had only eight treatments (the original Swift-Ellis), and should have had more. He gained 20 pounds in weight, improved physically, lost his speech and writing defects (see sample), gait became steady, tremors disappeared, and lost all appearance of a paretic so much in evidence on admission.

He remained at home in good condition for about five months, then gradually began to go down. He was returned to the hospital December, 1914, and he was in much the same condition as when first admitted. He had lost 25 pounds in weight, was stupid, had many expansive delusions and physical signs, such as speech defect, tremors, tabetic gait, were more pronounced. After his return to the hospital he was given six Ogilvie treatments with very good results, both clinically and biologically. He began to take more interest in his surroundings, and was apparently doing well when he had a convulsion, with aphasic disturbance, from which he nearly succumbed. However, he rallied and was later taken home by wife. The cell count after some fluctuation dropped to 5, and the globulin, which had been persistently 4 + for nearly a year, became negative, and then 4 + again. The blood Wassermann dropped from 4 + to negative, but the spinal fluid Wassermann persisted at 4 +.

Like several of the tabo-paretics, this case showed remarkable improvement and was taken home by wife after eight treatments, because he was apparently recovered. He remained at home for six months, and for five months seemed well, then rapidly failed. He is similar to cases 31 and 30 and to some extent case 4, which were tabo-paretics which improved wonderfully after six or eight treatments and then went home and treatment was discontinued, after which there was a severe relapse, and in case 31 followed by death, and in case 30 by improvement and able to be at home.

Biological Reaction.—The cell count dropped gradually from 40 to 4 after the third treatment, rose to 8 after seventh, and again dropped to 5.



CLINI.	Feb 4,14	Feb 28,14	Apr 15,14	June 15,14	DEC 29,14	FEB 2,15	FEB 16,15 *	MAY 25,15
DELS	XXX	XXX	X	O	XX	O	XXX	X
HALL				O	O	O	O	O
MEM	XXX	XXX	X	X	X	O	XXX	O
ATTD	XXX	XXX	O	O	XX	O	XXX	O
ORNT	XXX	XXX	O	O	X	O	XXX	O
P.IDN	XXX	XXX	O	O	O	X	XXX	X
SCH	XXX	XXX	O	O	X	X	XXX	X
CALC	XXX	XXX	O	O	X	X	XXX	X
EUPH	XXX	XXX	O	O	X	O	O	O
INST	XXX	XXX	O	O	XX	O	XXX	X
MOOD	XXX	XXX	X	O	X	O	O	O
PHYSI.								
NUTR	XXX	XX	O	O	XX	X	X	O
PUPL	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
TAST	XXX	XXX	O	O	O	O	O	O
SMEL	XXX	XXX	O	O	O	O	O	O
C.SEN	O	O	O	O	O	O	X	O
AB.K J.	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
EX.K J.								
MOTOR	XXX	XXX	X	O	XX	X	XXX	X
TREM	XXX	XXX	O	O	XX	X	XX	X
SPCH	XXX	XXX	X	O	X	O	XXX	O
GAIT	XXX	XXX	O	O	X	O	XXX	O
CONV	O	O	O	O	O	O	X	O
ROMB	XXX	XX	O	O	X	X	XX	X
WRIT	XXX	XX	X	O	O	O	XXX	O

* Shock following treatment.

CASE 5. CHART 13. E. R. G. P. DISC. MAR. 11, 1915.

The globulin content has remained at 4 +, as has also the blood and spinal fluid Wassermann.

This is the only case of this series where there has been a persistent 4 + globulin and 4 + Wassermann in blood and spinal fluid. Probably further treatment would have reduced the globulin and possibly the Wassermann reactions.

CASE 8.—*M. G. (see Chart 14). Female, age 35. Married. Irregular life. Expansive type. Duration one year. From Reformatory for Women. Ten Swift-Ellis and six Ogilvie treatments. Some improvement. Treatment interrupted for two months. Prognosis good. Excessive alcoholism.*

Paresis in a married woman, age 35. Family history shows considerable alcoholism and cancer. Farther dipsomaniac. Patient was wayward as a girl, but capable and efficient. At 17 went to New York and worked in a lawyer's office. Lived an irregular life for five years, then married and later divorced. Marked alcoholic excesses.

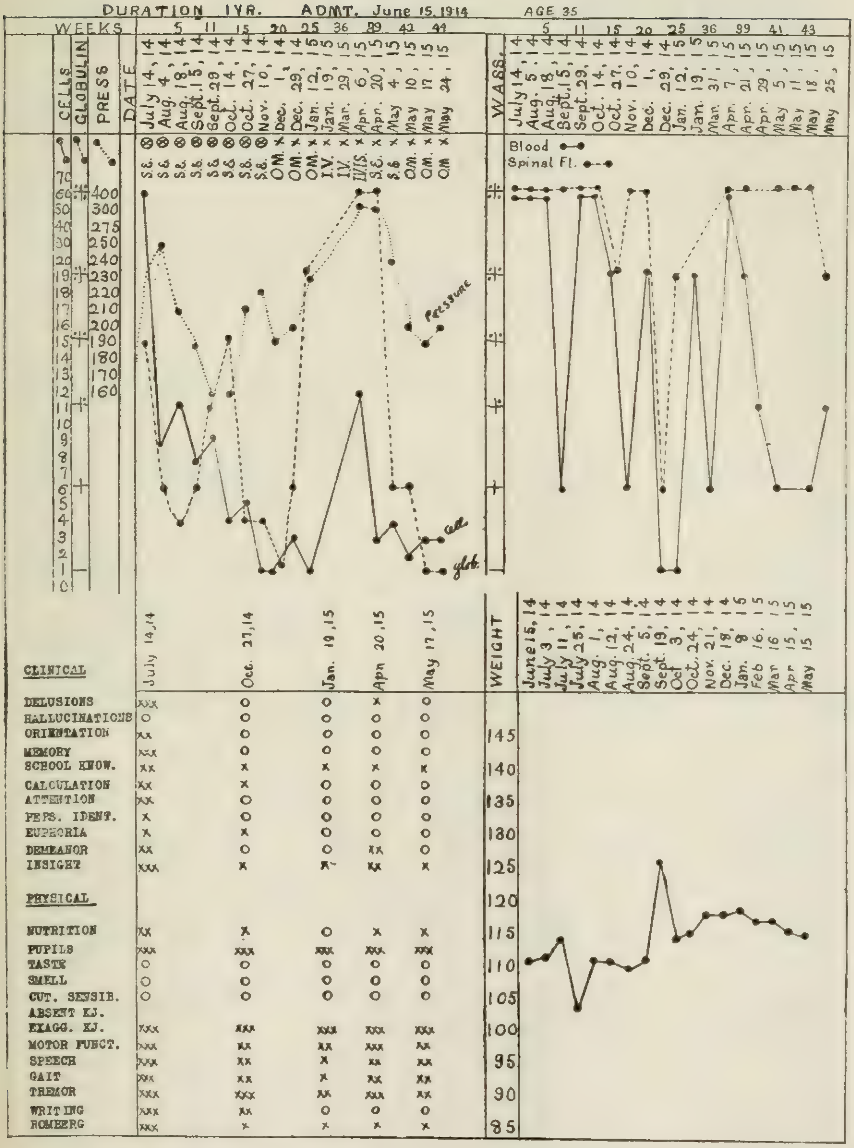
Onset.—Not known, but about one year ago began to show memory defects. Later she was arrested for stealing money, but was exonerated. Then sent to a house of detention and later to Reformatory for Women. There she became violent, irritable, and had to be kept locked up.

Admitted to the New Jersey State Hospital June 19, 1914, at which time she was somewhat confused, exhilarated and had expansive ideas. Orientation defective for time and place. Marked memory defects, especially for dates of events of her life and for recent events. School knowledge defective. No insight, and judgment poor.

Physically.—Poorly nourished, young looking woman. Knee jerks exaggerated. Marked tremors of facial muscles and hands. Speech defective and writing shows typical defects. Pupils sluggish to light. Marked incoordination. Gait unsteady.

Progress.—The patient was given eight Swift-Ellis treatments (.45 gm. neo-salvarsan) from July to November, with considerable improvement in both mental and physical condition. Then three O. M. treatments were given. She continued to improve and was given parole. In January, however, she left the hospital without permission and went to her mother's home. From there she wrote physician and asked to be allowed to remain. She was returned to the hospital in February after trying to elude nurses who had been sent for her, and was very resistive. After reaching hospital was somewhat excited and antagonistic and refused treatment. She had failed physically and mentally; was not in as good condition as when she left. It was difficult to get her to submit to treatment, but gradually she became more contented and at present is much better. She now has some insight and the prognosis seems better.

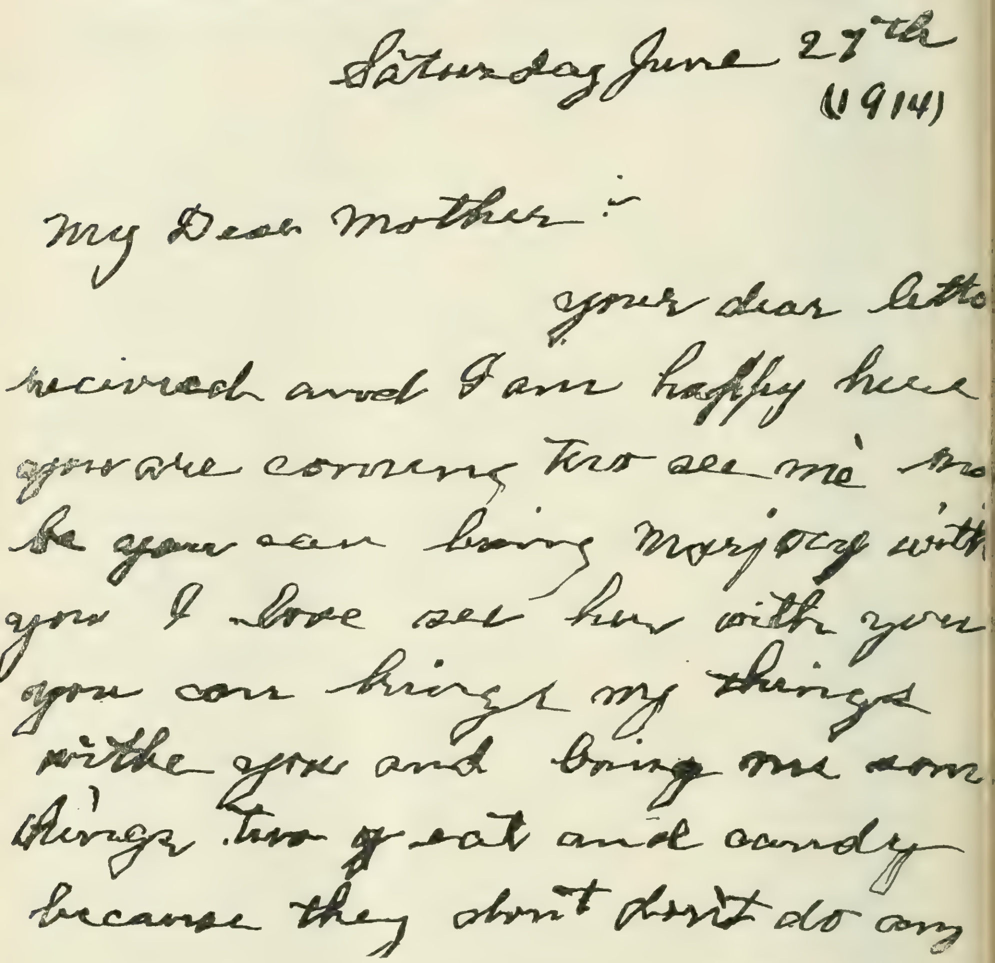
Reactions.—The cell count fell from 60 to 1 per cc. after eight Swift-Ellis treatments. The globulin also decreased from 3 + to negative, but increased to 3 + after two O. M. treatments. During the interval at home (and for some time following she refused treatment) the cell count



CLINICAL	July 14,14	Oct. 27,14	Jan. 19,15	Apr 20,15	May 17,15
DELUSIONS	xxx	o	o	x	o
HALLUCINATIONS	o	o	o	o	o
ORIENTATION	xx	o	o	o	o
MEMORY	xxx	o	o	o	o
SCHOOL KNOW.	xx	x	x	x	x
CALCULATION	xx	x	o	o	o
ATTENTION	xx	o	o	o	o
PERS. IDENT.	x	o	o	o	o
EUPHORIA	x	x	o	o	o
DEMEANOR	xx	o	o	xx	o
INSIGHT	xxx	x	x	xx	x
PHYSICAL					
NUTRITION	xx	x	o	x	x
PUPILS	xxx	xxx	xxx	xxx	xxx
TASTE	o	o	o	o	o
SMELL	o	o	o	o	o
CUT. SENSIB.	o	o	o	o	o
ABSENT KJ.					
EXAGG. KJ.	xxx	xxx	xxx	xxx	xxx
MOTOR FUNCT.	xxx	xx	xx	xxx	xx
SPEECH	xxx	xx	x	xx	xx
GAIT	xxx	xx	x	xx	xx
TREMOR	xxx	xxx	xx	xxx	xx
WRITING	xxx	xx	o	o	o
ROMBERG	xxx	x	x	x	x

Case 8. Chart 14. M. G. Paresis.

rose to 12 per cc., but decreased to 3 after treatments were continued. The globulin also increased to 4+, and later became negative. The Wassermann reaction in the blood started at 4+, then gradually became negative (after some fluctuation). During the interval of interrupted treatment it again became 4+, but has gradually dropped to ±. In the spinal fluid the Wassermann was 4+, and after fluctuating became ±. During the interval it increased to 4+, and has remained so since treatment was resumed.



Saturday June 27th
(1914)

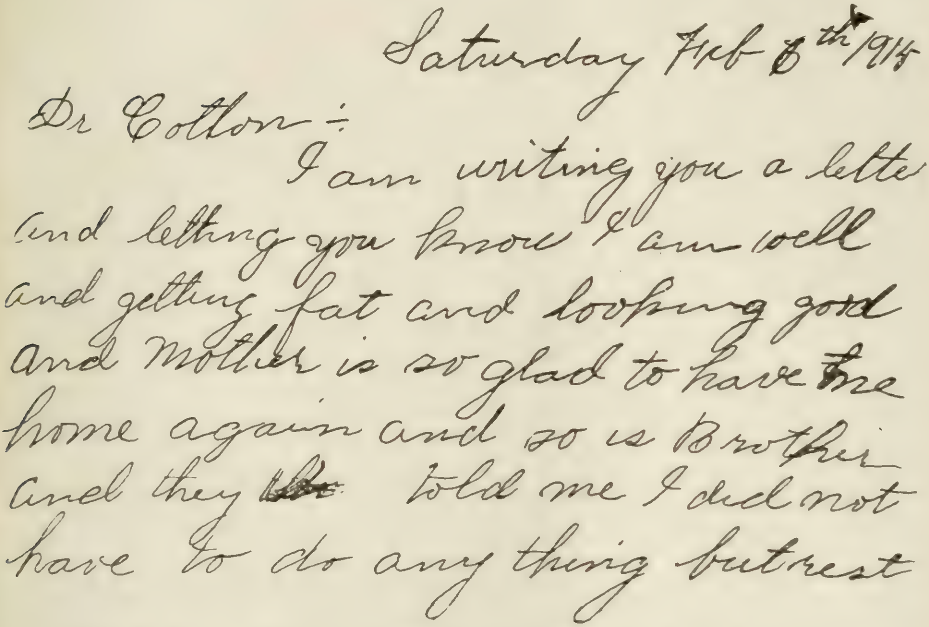
My Dear Mother:-

your dear lette
recived and I am happy here
you are coming two see me ma
be you can bring Marjory with
you I love see her with you
you can bringe my things
withe you and bring me som
things two g eat and candy
because they dont dont do any

CASE 8. FIG. 1. SPECIMEN OF WRITING ON ADMISSION.

Colloidal Gold Reaction—5 5 4 4 3 3 2 1 0 0 0.

The patient is now getting weekly treatments with some success. The interruption, however, caused a relapse in her mental and physical condition, also in the reactions, but it was fortunately of short duration and the outlook seems better.



Saturday Feb 6th 1915

Dr Cotton :-

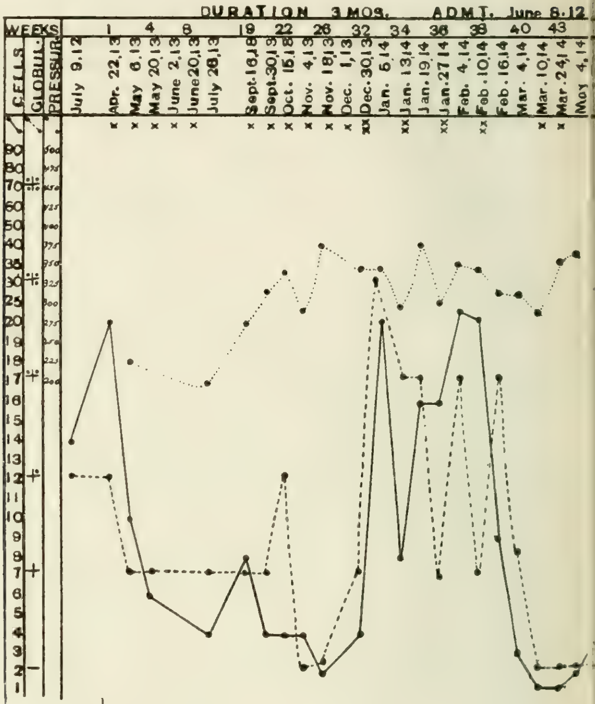
I am writing you a lette
and letting you know I am well
and getting fat and looking good
and Mother is so glad to have me
home again and so is Brother
and they ~~the~~ told me I did not
have to do any thing butrest

CASE 8. FIG. 2. SPECIMENS OF WRITING EIGHT MONTHS AFTER TREATMENT.

CASE 14.—*A. B. (see Chart 15). Juvenile paretic, age 23. Onset 1½ years prior to treatment. Changed from a dull, stupid, untidy patient to bright, alert and improved physical condition. Modified progress of disease. Mild deterioration. Swift-Ellis treatment. Stationary case at present.*

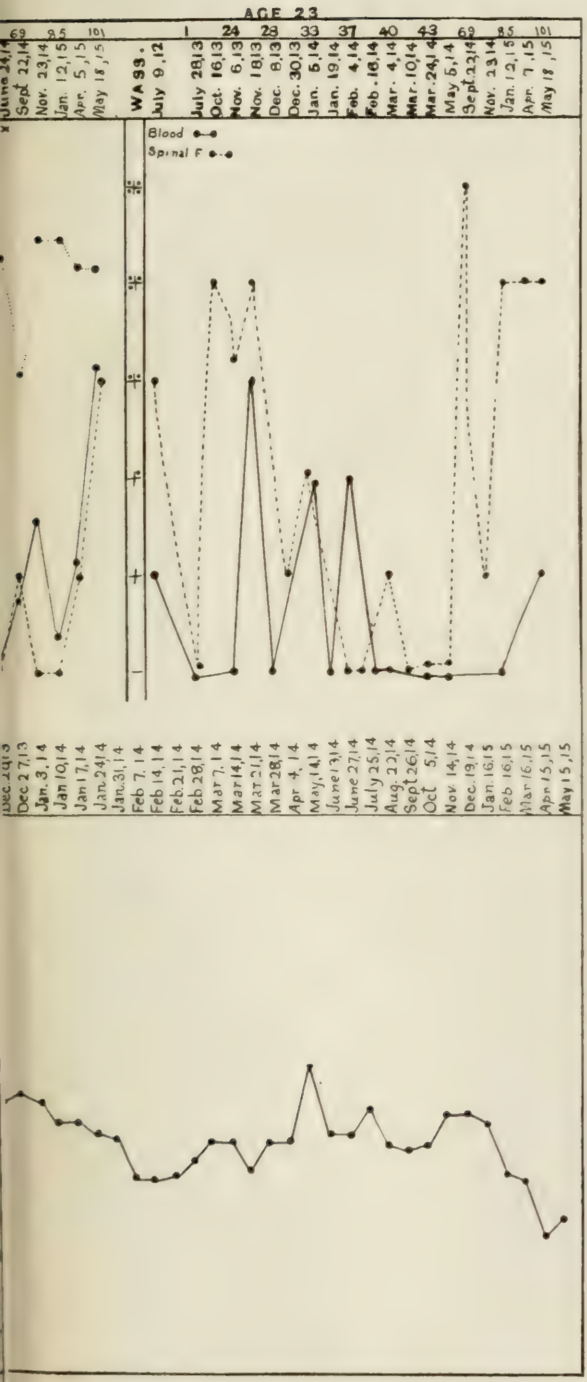
A case of juvenile paresis in a boy age 23. Nothing known of family or personal history. Common school education, and for five years worked as a messenger for the Associated Press Office in Philadelphia. Stopped work two months before admission, June 28, 1912.

Physical Examination.—On admission thin, poorly nourished boy. Weight 117 pounds. Had had frequent fainting attacks, fell around on the streets and broke collar bone just before admission. Pupils unequal, stiff to light. Marked speech defect. Spastic gait. Tremors of hands, tongue and facial muscles. Knee jerks exaggerated and marked ankle clonus. Writing defects.



CLINICAL	July 10,12	Oct 12,12	Aug. 13,13	Jan. 14,14	Mar. 14,14	June 15,14	Sept 15,1
DELUSIONS	O	O	O	O	O	O	O
HALLUCINA.	O	O	O	O	O	O	O
MEMORY	XXX	XXX	O	O	O	O	O
ATTENTION	XX	XX	O	X	O	O	O
ORIENTATION	X	XX	O	O	O	O	O
PERS. IDENT.	X	X	O	O	O	O	O
SCHOOL KNOW.	XX	XX	X	X	X	X	X
CALCULATION	XXX	XX:	O	O	O	O	O
EUPHORIA	O	O	O	O	O	O	O
INSIGHT	XX	XX	O	O	O	O	O
MOOD	O	O	O	O	O	O	O
PHYSICAL							
NUTRITION	XX	O	O	X	O	O	O
PUPILS	XXX	XXX	XXX	XXX	XXX	XXX	XXX
TASTE	X	X	X	X	X?	X?	X?
SMELL	X	X	X	X	X!	X?	X?
CUT. SENSIB.	O	O	O	O	O	O	O
ABSENT KJ.							
EXAG. KJ.	XXX	XXX	XXX	XXX	XXX	XXX	XXX
MOTOR FUNCT.	XXX	XX	X	XX	X	O	O
TREMOR	X	X	X	XX	X	O	O
SPEECH	XXX	XXX	X	XX	X	X	X
GAIT	XXX	XXX	X	X	O	O	O
CONVULSIONS	XX	O	O	O	O	O	O
ROMBERG	XX	XX	X	X	O	O	O
WRITING	XX	XX	X	X	X	X	X

Case 14. Chart 15. A



N Bk. Juvenile G. P.

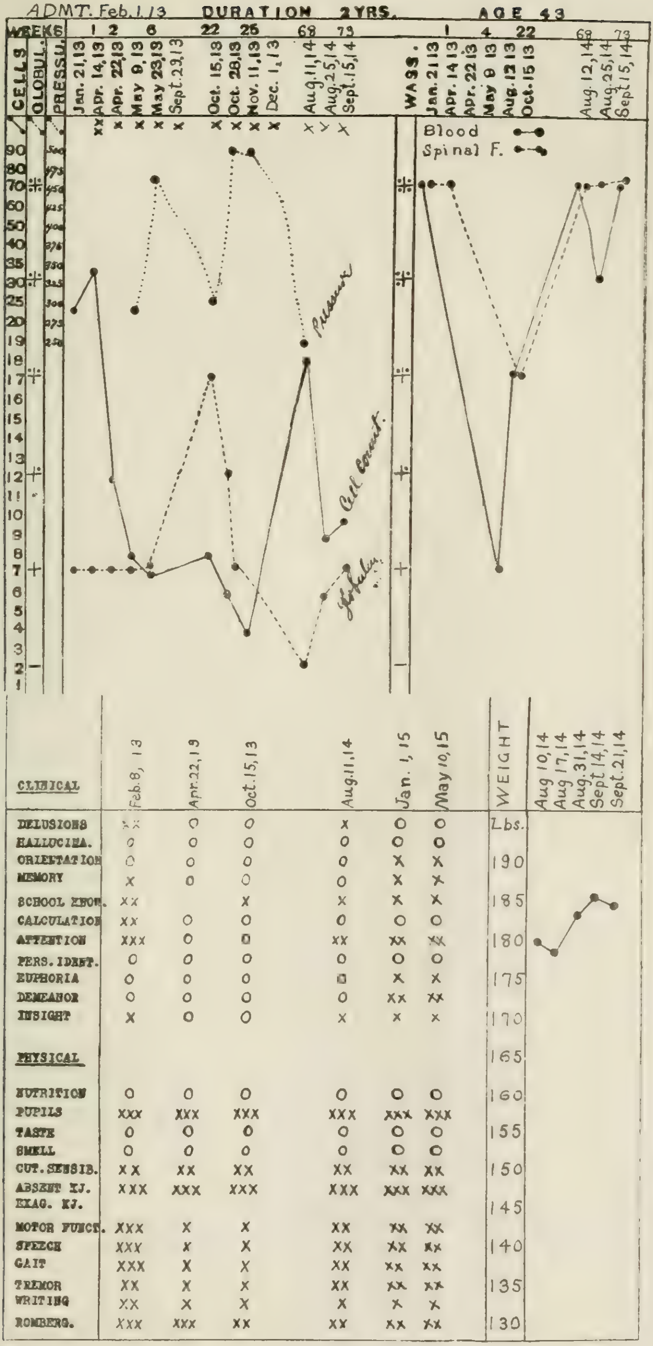
Mental Examination.—Mentally the patient was dull, stupid and untidy. Sits about the ward unoccupied and indolent. Orientation defective for time. Memory shows very typical defects. School knowledge and calculation ability poor. Insight and judgment defective.

Progress of Case.—At first, from the age of patient and general apathy, the case was considered one of dementia præcox, until the physical signs were noted and lumbar puncture found to be positive. He remained in this condition for eight months, when treatment was started. After six treatments he began to show considerable improvement. He lost his dull, stupid expression and demeanor, became more alert. Took more interest in his surroundings, read a great deal, and there was a corresponding improvement in his physical condition. His gait became steadier, loss of ataxia, speech clearer and not slurring, but some tremor remained. Gained 23 pounds in weight. He received in all 18 treatments, the last being a year ago (June, 1914), and his condition has remained stationary. He is mildly deteriorated, but works daily on the ward and is bright and alert, showing good memory and insight.

Treatment.—He was given the original S.-E. treatment every two weeks. with the result that the cell count fell from 20 to 2, and the globulin became negative. The blood and spinal fluid Wassermann fluctuated some, but were reduced to negative. However, three months after last treatment the spinal fluid Wassermann became 4+. Between December 13 and February 14 he was given a heterogeneous serum—that is, a salvarsanized serum obtained from another patient—and the result was a marked increase of the cells (from 4 to 20) and a corresponding increase in the globulin content. After this serum was discontinued the cells and globulin became normal again. This phenomenon was noticed also in case 4, where a similar increase in this number of cells per cc. and globulin was noted when a heterogeneous serum was injected into the spinal canal. We can consider this case as one in which the disease process was partially arrested and the course of the disease considerably modified. Since treatment was discontinued the spinal fluid Wassermann has become strongly positive, and after a year is minus. The probabilities are that he will remain in his present condition and can be termed a stationary case.

CASE 30.—*J. W. G. (see Chart 16). Voluntary commitment. Male, age 43. Tabetic type. Duration two years. Progressive deterioration. Rapid improvement following four Swift-Ellis treatments. Treatment interrupted twice, with relapses. Temporary paralysis of bladder. Severe reaction to treatment. Recovery from mental symptoms, but progression of physical symptoms. Prognosis poor.*

Tabo-paresis in a married man, age 43, with negative family and personal history. Onset of both mental and physical symptoms about two years before admission. Began by having lightning pains, speech defect and loss of memory, but was able to continue at work. Admitted to the New Jersey State Hospital February 1, 1913, in a dazed, stupid condition, unable to talk or answer questions.



CLINICAL	Feb.8, 13	Apr.22,13	Oct.15,13	Aug.11,14	Jan. 1, 15	May 10,15
DELUSIONS	xx	0	0	x	0	0
HALLUCINA.	0	0	0	0	0	0
ORIENTATION	0	0	0	0	X	X
MEMORY	X	0	0	0	X	X
SCHOOL KNOW.	XX		X	X	X	X
CALCULATION	XX	0	0	0	0	0
ATTENTION	XXX	0	0	XX	XX	XX
PERS. IDENT.	0	0	0	0	0	0
EUPHORIA	0	0	0	0	X	X
DEMEANOR	0	0	0	0	XX	XX
INSIGHT	X	0	0	X	X	X
PHYSICAL						
NUTRITION	0	0	0	0	0	0
PUPILS	XXX	XXX	XXX	XXX	XXX	XXX
TASTE	0	0	0	0	0	0
SMELL	0	0	0	0	0	0
CUT. SENSIB.	XX	XX	XX	XX	XX	XX
ABSENT KJ.	XXX	XXX	XXX	XXX	XXX	XXX
EXAG. KJ.						
MOTOR FUNCT.	XXX	X	X	XX	XX	XX
SPEECH	XXX	X	X	XX	XX	XX
GAIT	XXX	X	X	XX	XX	XX
TREMOR	XX	X	X	XX	XX	XX
WRITING	XX	X	X	X	X	X
ROMBERG.	XXX	XXX	XX	XX	XX	XX

Case 30. Chart 16. J. W. G. G. P. Dis. Apr. 22, 1913.

Physically.—He was a well-nourished white man. Headache in frontal region. Regular, unequal pupils, sluggish to light. Absent knee jerks and Achilles. Diminished pain sense in lower extremities. No convulsions. Motor functions defective, with slurring speech, ataxic gait and speech defect. Tremors of hands and tongue. Writing defective.

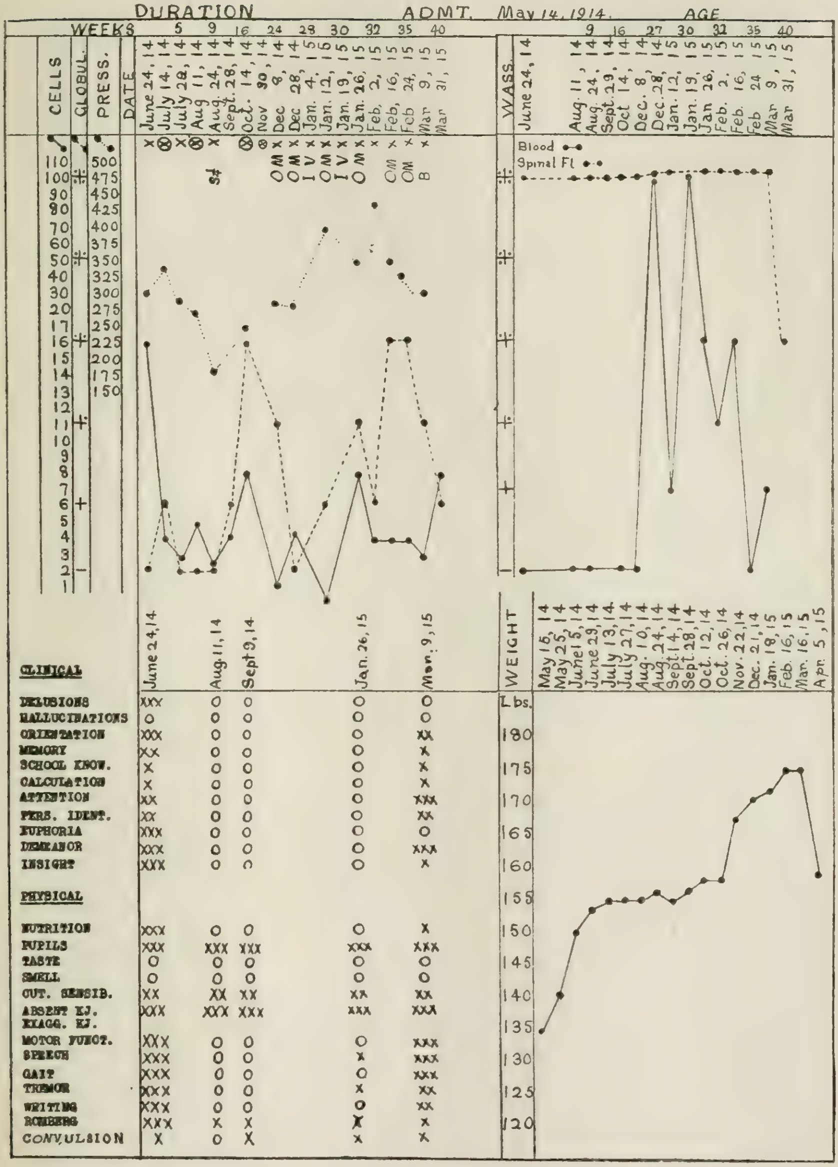
Mentally.—He was quiet, but stupid and slept most of the time. Difficult to arouse him. Hesitating in speech, answers questions in monosyllables. He exhibited some delusions of poisoning and persecution. Well oriented for time, place and person. Memory defective. School knowledge and calculation defective. Very little insight into his condition.

Progress of Case.—Patient rapidly improved after four Swift-Ellis treatments, and wife removed him from the hospital against advice. He became much brighter, talkative, and improved physically, although he had some speech defect. He remained at home four months, when he was returned to the hospital. He had rather severe reaction to the treatment, and after fourth injection had severe paralysis of bladder and had to be catheterized for a week or ten days. This gradually cleared up. He remained in the hospital for four months, receiving five treatments (S.-E.), when he was again taken home by wife. This time he had improved very much and he was able to go about his work, drive about the city, but he was returned upon advice of the physician. He had three more treatments, and after the third one became partially paralyzed, unable to walk, with bladder and rectum paralysis, and was in rather a critical condition. He began to deteriorate slowly and physical symptoms became worse. He always had a severe reaction after the intravenous injections, and is the only one in a series of 66 cases that showed any bladder symptoms after intraspinous injections. On two occasions definite bladder and rectal paralysis followed the treatment (Swift-Ellis), but he recovered from both attacks.

He was again removed from the hospital by his wife in October, 1914, and has since remained at home, but with no improvement, and is gradually failing, both mentally and physically. The case belongs to the group of tabetic cases or tabo-paresis, and, like those cases, showed marked improvement at first, but because of this improvement they were, like this patient, removed from the hospital and treatment interrupted, and then a relapse occurred, from which the patient did not rally in spite of continued treatments.

CASE 31.—*H. L. (see Chart 17). Male, age 40. Tabetic-expansive type. Tabes of 11 years' duration (?). Paresis of two years' duration, gradual inefficiency. Convulsions, progressing dementia. Expansive ideas. Five intravenous injections of salvarsan without effect. Rapid improvement under Swift-Ellis treatment. Marked remission. Died during treatment after one year.*

Paresis in a married man, age 40, with negative family history and negative personal history. Salesman, making $100 per week. Married for 12 years, has had three children, all healthy. Eleven years ago had an



CLINICAL	June 24, 14	Aug. 11, 14	Sept 9, 14	Jan. 26, 15	Mar. 9, 15
DELUSIONS	XXX	O	O	O	O
HALLUCINATIONS	O	O	O	O	O
ORIENTATION	XXX	O	O	O	XX
MEMORY	XX	O	O	O	X
SCHOOL KNOW.	X	O	O	O	X
CALCULATION	X	O	O	O	X
ATTENTION	XX	O	O	O	XXX
PERS. IDENT.	XX	O	O	O	XX
EUPHORIA	XXX	O	O	O	O
DEMEANOR	XXX	O	O	O	XXX
INSIGHT	XXX	O	O	O	X
PHYSICAL					
NUTRITION	XXX	O	O	O	X
PUPILS	XXX	XXX	XXX	XXX	XXX
TASTE	O	O	O	O	O
SMELL	O	O	O	O	O
CUT. SENSIB.	XX	XX	XX	XX	XX
ABSENT KJ. EXAGG. KJ.	XXX	XXX	XXX	XXX	XXX
MOTOR FUNCT.	XXX	O	O	O	XXX
SPEECH	XXX	O	O	X	XXX
GAIT	XXX	O	O	O	XXX
TREMOR	XXX	O	O	X	XX
WRITING	XXX	O	O	O	XX
ROMBERG	XXX	X	X	X	X
CONVULSION	X	O	X	X	X

CASE 31. CHART 17. H. LAC. TABETIC G. P. DIED APR. 11, 1915.

attack of "ptomaine poisoning" (?) (beginning crises (?)), and these continued every three months for six years. These attacks described by brother, a physician. Unable to retain anything on stomach. No elevation of temperature and no pain. Often these attacks lasted six weeks, fed with nutrient enemas. For five years these seizures ceased. For last three years complained at times of excruciating pains, which occurred mostly at night and were of momentary duration. Pain in fingers and toes. For last year has not been able to work. Once had to be catheterized for retention of urine. There was gradual mental deterioration, inefficiency, and lack of judgment. On May 22, 1913, he had several convulsive seizures. He was admitted to the neurological ward of the Kings County Hospital, where he was violent and unmanageable and had to be forcibly restrained. Showed defective memory and orientation, speech defective, absent knee jerks and pupillary disturbances. He was given there three intravenous injections of salvarsan without effect. He was transferred to the Long Island State Hospital, June 4, 1913. On admission there, was quiet, disoriented; thought he was in his own home; had been there 11 years, and at another time for six days. Marked memory defect. Stated he had been married 11 years, was married in 1911-1912, unable to give any account of commitment to that hospital. Retention *nil*. School knowledge and general information poor. No delusions of grandeur on admission, but euphoric and elated. General feeling of well-being. Absolutely no insight. On the 12th of June was given intravenous injection of neo-salvarsan, 9/10 gm. Vomited several times. On the 26th of June patient expressed expansive ideas, power to heal sick, had communication with Christ, that he is going to cure all diseases, going to buy an airship, has boarders and charges $1.25 a meal, that he is going to make millions and travel around the world. On the 26th of June given another intravenous injection.

Physically.—Unequal pupils, absent knee jerks, characteristic speech defects, tremors of hands and tongue, anæmia. Lumbar puncture gave positive reaction for general paralysis. Positive blood and fluid Wassermann. He improved some and was discharged to wife, October 18, 1913. At home he did well for some months, but had a series of convulsions and was unable to work.

He was admitted to this hospital May 14, 1914, in a dazed condition, demented, general feeling of well-being, but irritable. Memory was defective, especially for recent events. School knowledge and calculating ability fair. No marked expansive delusions, but a tendency to same. Thought he was able to go to work. Absolutely no insight.

Physically he was in a poor condition. Weight only 135 pounds. He had a bad abrasion on nose, result of fall (convulsion?), also abrasions about elbows, hands, knees and shins. Right foot swollen. Bruises on chest, chin and lower legs. Smell normal. *Eyes*—Pupils equal, but no reaction to light, slight to accommodation. Cutaneous sensibilities dull over lower extremities to heat and cold and pain, otherwise negative.

Knee jerks and Achilles absent. *Motor functions*—Swaying in Romberg. Marked tremors of tongue. Speech defect, characteristic. Writing defective. No digestive disturbance. Although the committing physician stated that he had expansive ideas, these were not brought out after admission. He walked away from home and could not tell where he was.

Progress of Case.—Soon after taking the Swift-Ellis treatment here he improved very much, and for last three months has had parole. He spent his time in reading, going to town, and acts in a perfectly normal manner. His memory is good, well oriented, no delusions, and has perfect insight. He has improved physically, gained 40 pounds in weight. Gait normal. No appreciable speech defect. Writing good, but knee jerks and pupils remain unchanged.

Patient continued to improve, but had an occasional convulsion and seemed to be slowly deteriorating. The spinal fluid Wassermann remained 4 + and apparently could not be influenced. His treatment was changed to Byrnes bichloride method, but soon after injection he had several convulsions and finally went into a collapsed condition, from which he rallied, but finally succumbed to a septic infection of the arm a month later, and died April 18, 1915.

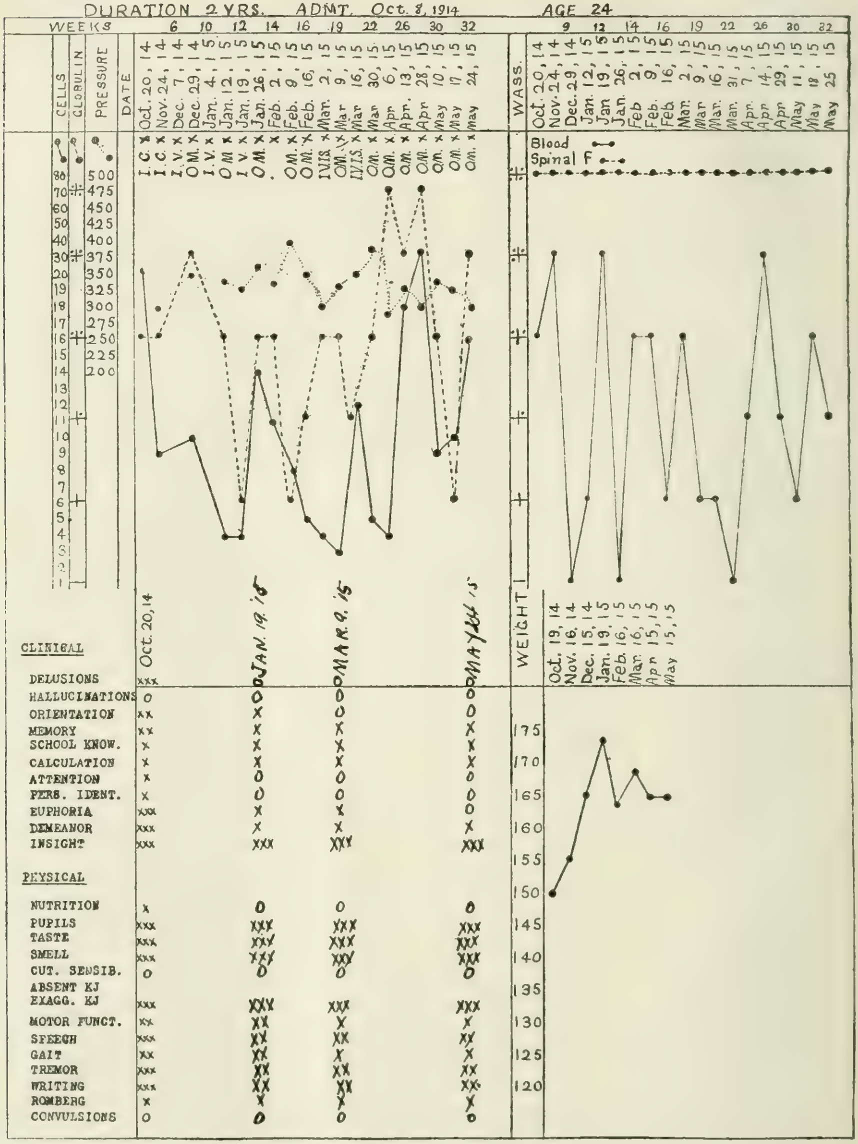
Discussion.—This is another case of tabo-paresis which showed marked improvement to treatment, but which showed a tendency to remissions. He had a series of treatments a year before admission here, but for six months received no treatment. He was apparently doing well when he had a collapse, not following treatment but several days after a bichloride treatment. His case is somewhat similar to cases 5 and 30.

CASE 35.—*C. P. (see Chart 18). Male, age 34, married. Bayman. Duration before treatment two years. Expansive type. Two intracranial, five Swift-Ellis, 12 Ogilvie methods. Some improvement. Still under treatment. Prognosis fair.*

Paresis in a married man, age 34, with negative family and personal history. Common school education, but rather low grade of intelligence, and by occupation a bayman or oysterman on the sailing boats at Barnegat Bay.

Onset of Psychosis.—About two years before admission to New Jersey State Hospital, October 8, 1914. Gradual loss of memory and inefficient. Developed expansive delusions and showed marked conduct disorders, going into neighbors' houses and appropriating articles belonging to them. Arrested and later committed here, October 8, 1914.

Physical Examination.—On admission showed marked tremor of tongue, unequal, stiff pupils, swaying in Romberg, exaggerated knee jerks, marked speech defect, and writing defective. Smell and taste defective. Cutaneous sensibilities hypersensitive and no dulling.



CLINICAL	Oct. 20, 14	JAN. 19, 15	MAR. 9, 15	MAY 24, 15
DELUSIONS	xxx	0	0	0
HALLUCINATIONS	0	0	0	0
ORIENTATION	xx	x	0	0
MEMORY	xx	x	x	x
SCHOOL KNOW.	x	x	x	x
CALCULATION	x	x	x	x
ATTENTION	x	0	0	0
PERS. IDENT.	x	0	0	0
EUPHORIA	xxx	x	x	0
DEMEANOR	xxx	x	x	x
INSIGHT	xxx	xxx	xxx	xxx
PHYSICAL				
NUTRITION	x	0	0	0
PUPILS	xxx	xxx	xxx	xxx
TASTE	xxx	xxx	xxx	xxx
SMELL	xxx	xxx	xxx	xxx
CUT. SENSIB.	0	0	0	0
ABSENT KJ				
EXAGG. KJ	xxx	xxx	xxx	xxx
MOTOR FUNCT.	xx	xx	x	x
SPEECH	xxx	xx	xx	xx
GAIT	xx	xx	x	x
TREMOR	xxx	xx	xx	xx
WRITING	xxx	xx	xx	xx
ROMBERG	x	x	x	x
CONVULSIONS	0	0	0	0

CASE 35. CHART 18. C. PAR. G. P. EXPANSIVE TYPE. SOME IMPROVEMENT.

Mental Examination.—General feeling of well-being and euphoria, but with marked memory defect and defect in orientation. Unable to remember name of place a few minutes after having been told. Expansive ideas regarding property and his business affairs. Data of personal identification defective. School knowledge and calculation ability poor. Absolutely no insight into his condition.

Progress of Case.—Patient has shown but little improvement in his mental condition. He is better oriented and his memory has improved. He has lost his expansive delusions, but has not as yet developed any insight. He shows variable moods, at times good natured and smiling, at other times depressed and crying. Very anxious to go home. He has improved somewhat physically, has gained 25 pounds in weight, but the neurological symptoms are about the same. He still has a marked speech defect and tremors.

Treatment and Reactions.—This patient had two intracranial punctures (Wardner) at the beginning of his treatment, but this method had to be discontinued because of certain circumstances which could not be removed at that time, and following this treatment he was given five Swift-Ellis and 12 Ogilvie treatments. For the last two months he has had weekly treatments with some improvement. He has shown no untoward reactions following either the intracranial or intraspinal treatments.

Colloidal Gold Reaction.—5 5 5 4 4 3 1 1 1 0 0.

Reactions.—The cell count fell rapidly from 30 to 4 per cc. after three treatments, but has shown a tendency to fluctuate at times as high as 30 and frequently becoming normal. The globulin content has followed the fluctuations of the cell count to some extent. Beginning at 2 + it became 3 +, then reached —, but when the cell count increased to 30 the globulin also became 4 +. The blood Wassermann has shown the usual fluctuation, at times as strong as 3 + and frequently negative. The Wassermann reaction in the spinal fluid, however, has remained persistently 4 +, and has not been influenced by treatment.

Prognosis.—The long duration (two years) renders the prognosis doubtful, especially as the patient has shown but little improvement after 17 treatments. However, there has been some improvement, and he will be treated further, as he has shown no tendency to become more demented.

GROUP 3. UNIMPROVED. (7 CASES, 22.5%.)

In this group we have reported seven cases, which have been treated for sufficient period for us to conclude that further treatments would be useless. Two patients (15 and 16) were of the juvenile type, both in the advanced stages of paresis. In the former the duration was put at three years and in the latter 18 months. The effect of the treatment upon the mental condition in both was nil. In one (case 15) the globulin was negative and remained so, and in case 16 the globulin was very positive, and after reaching 2 + it became negative and has remained so.

The cell count was reduced from 30 to 1 and 70 to 1, respectively, in both cases. The Wassermann reactions were entirely dissimilar; in case 15 the blood was strongly positive and in case 16 barely positive. Both reactions became negative and have remained so. They received a combination of the S.-E. and O. M. treatments, but neither was successful.

All of these cases were of the demented type and in two cases, 34 and 17, they were also markedly expansive. But the predominating feature of this group is dementia of a rapid type. The duration varied from one to three years, the average duration being one year and three months, somewhat below the general average duration for paresis. All of these cases were admitted during the last year and a half, so were given treatments, although little was expected from the fact that they were much demented when admitted.

One case (34) deserves special mention, as the patient was persistently resistive and with one or two exceptions it was necessary to anæsthetize him three times for every treatment (intravenous injection, withdrawing blood, and intraspinous injection). The treatment has had some effect upon his mental condition, as he became quieter and has been able to assist on the wards, but aside from this he has continued in the same demented condition as on admission. This patient has received 16 S.-E. treatments and two intracranial, one the regular and the second the Cotton modification, but there was no improvement from any method. The cell count has become normal (from 100 to 3 cc.) and the globulin has also been reduced from 4 + to negative. The blood Wassermann was weakly positive and soon became negative, while the spinal fluid reaction has varied from negative to 4 + to negative.

In three of these cases the spinal fluid Wassermann was not strongly positive, but the blood Wassermann was 4 + in five cases and in all but one it was reduced to negative. Case 17 has had three intracranial treatments after four O. M. and five S.-E. treatments with no success.

The globulin reaction in five cases was 4 + and was reduced by the treatment to negative, except in one case (17), after becoming negative and after a year's interval without treatment, the cell count increased to 50 and the globulin was strongly positive. Most of the cases in this group showed increase in weight, from 20 to 45 pounds; especially in case 34 was the increase noted. All the cases are in good physical condition at the present time, but are profoundly demented mentally.

CASES OF GROUP 3.

CASE 15.—*A. C. Paresis, male, age 23. Juvenile demented type. Congenital deformity of hands and feet. Duration three years. Five S.-E. and four O. M. treatments. No change. Moderately demented. Prognosis bad. (See chart 19.)*

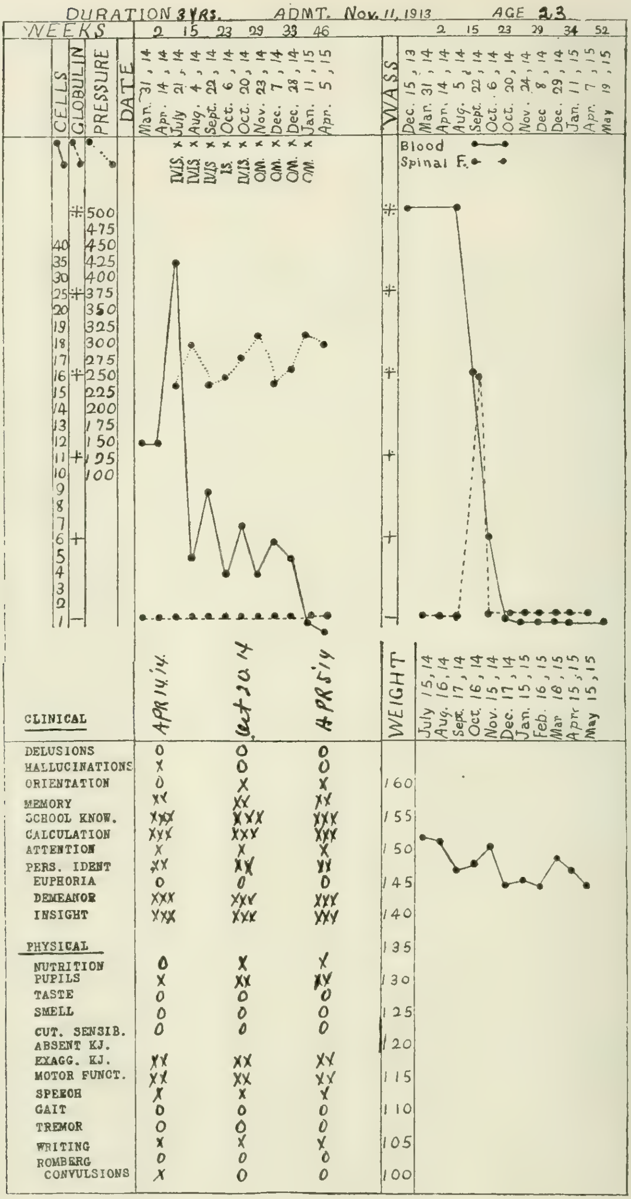
Juvenile paresis in a somewhat physically defective boy with congenital deformities of both hands and feet (defective fingers and toes). Received a fair common school education until age 16. Worked at trade of plumber, showing talent and industry in work.

Onset of Psychosis.—About three years ago had a shock involving right side of face and right arm, from which he recovered after four weeks. Since then decreased interest in work and change in disposition. A year ago gave up work, dissatisfied with people with whom he had to work. Gradually became seclusive and demented. Admitted here November 11, 1913.

Physically he was well nourished. Congenital deformities of hands and feet, absence of some fingers and toes. General feeling of well-being. Pupils dilated and equal. Normal reaction to light. No disturbance of taste, smell or cutaneous sensibilities. Knee jerks normal. No tremors, but writing defective, and speech slurring.

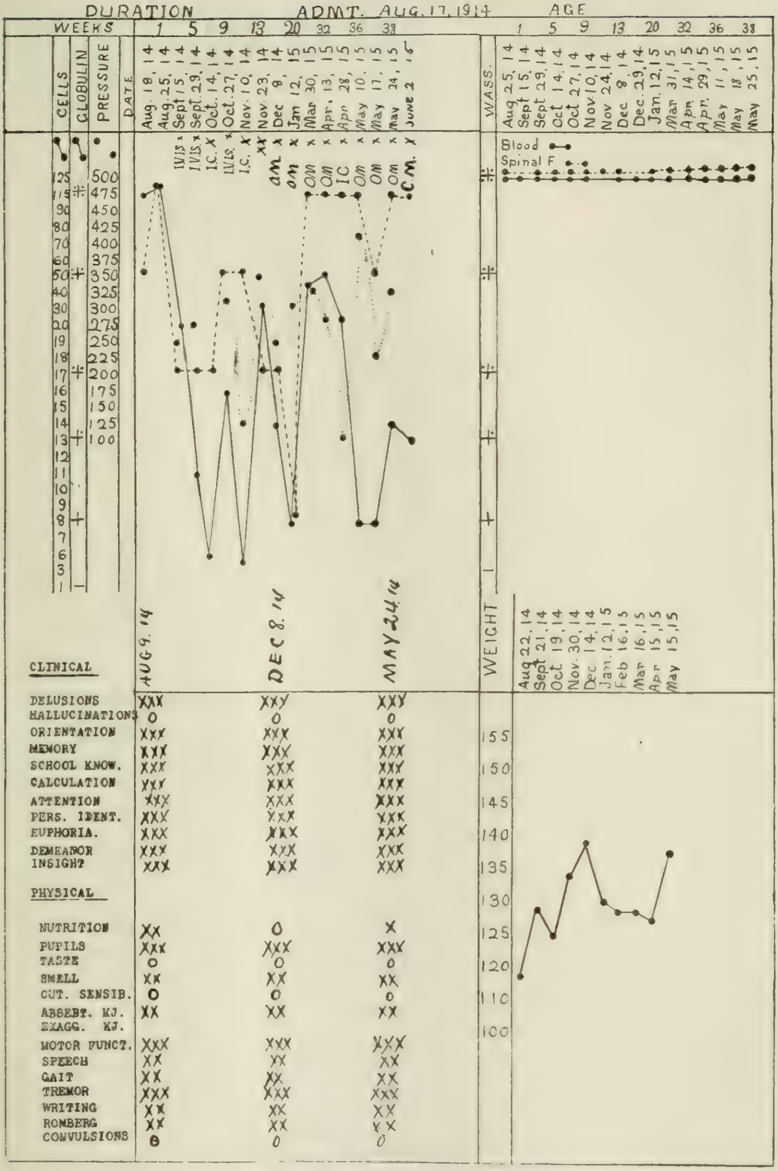
Mentally he was apathetic and indifferent to his surroundings. No delusions elicited. Well oriented for place and person and time. Memory defective. School knowledge and calculation defective. No insight, and judgment defective.

Progress.—Patient has shown no improvement after five S.-E. and five O. M. treatments. He is rapidly dementing. His physical signs are rather slight, but progressing gradually. He has lost weight, about five pounds since admission. The cell count has fallen from 35 to 1, and the globulin has been persistently negative. This is the second case of our series with a persistent negative globulin. The other case (1) was also one of juvenile paresis. The blood Wassermann was 4 + before treatment, and has gradually fallen to negative. The spinal fluid Wassermann was negative on admission, became 2 + and then negative. The treatments were discontinued, as no apparent effect was produced in his mental condition.

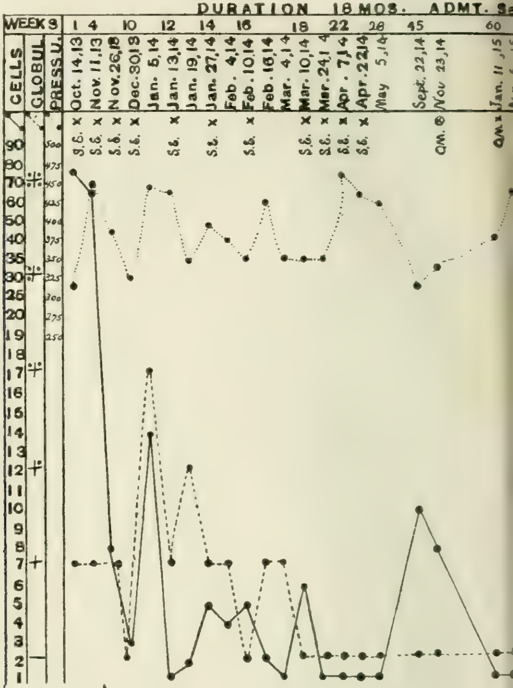


CLINICAL	APR 14. 14.	Oct 20 14	APR 5 '15
DELUSIONS	0	0	0
HALLUCINATIONS	X	0	0
ORIENTATION	0	X	X
MEMORY	XX	XX	XX
SCHOOL KNOW.	XXX	XXX	XXX
CALCULATION	XXX	XXX	XXX
ATTENTION	X	X	X
PERS. IDENT	XX	XX	XX
EUPHORIA	0	0	0
DEMEANOR	XXX	XXX	XXX
INSIGHT	XXX	XXX	XXX
PHYSICAL			
NUTRITION	0	X	X
PUPILS	X	XX	XX
TASTE	0	0	0
SMELL	0	0	0
CUT. SENSIB.	0	0	0
ABSENT KJ.			
EXAGG. KJ.	XX	XX	XX
MOTOR FUNCT.	XX	XX	XX
SPEECH	X	X	X
GAIT	0	0	0
TREMOR	0	0	0
WRITING	X	X	X
ROMBERG	0	0	0
CONVULSIONS	X	0	0

CASE 15. CHART 19. ARTHUR CH. JUVENILE PARESIS.

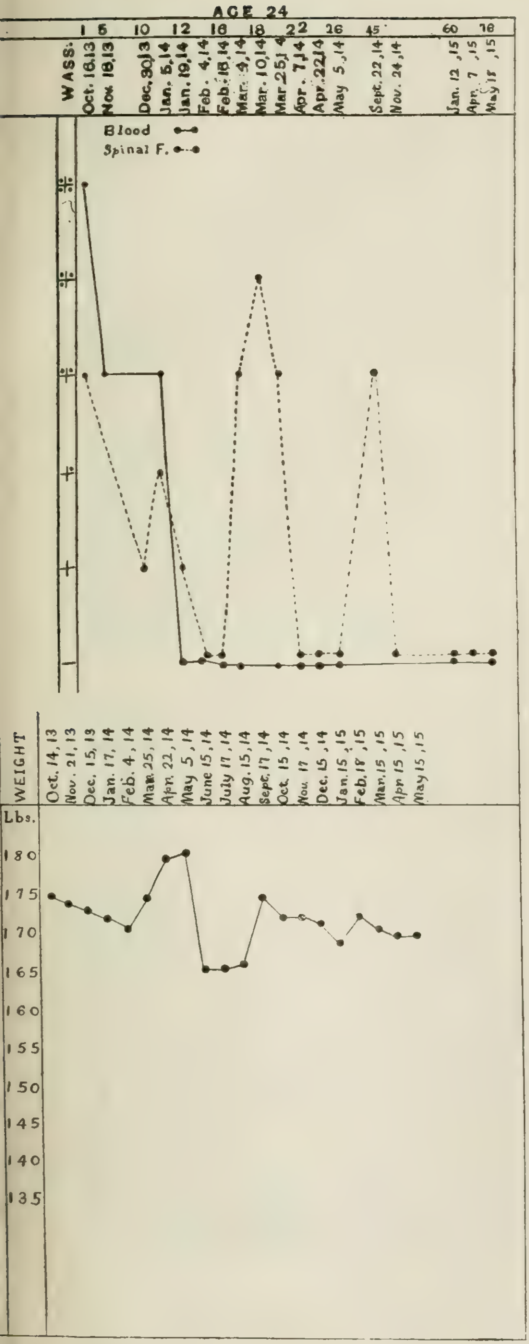


CASE 17. CHART 20. JOS. STR.



CLINICAL	OCT. 1913	MAR 1914
DELUSIONS	X	X
HALLUCINA.		XXX
ORIENTATION	XXX	XXX
MEMORY	XXX	XXX
SCHOOL KNO	XXX	XXX
CALUULATION	XXX	XXX
DEMEANOR	XXX	XXX
PERS. IDENT	XXX	XXX
EUPHORIA	X	X
DEMENTIA	XXX	XXX
INSIGHT	XXX	XXX
PHYSICAL		
NUTRITION	0	X
PUPILS	XXX	XXX
TASTE	0	0
SMELL	0	0
CUT SENSIB	XX	XX
ABSENT K.J.		
EXAGG K.J.	XX	XX
MOTOR	XXX	XXX
SPEECH	XXX	XXX
GAIT	XX	XX
TREMORS.	XX	XX
WRITING	XXX	XXX
ROMBERG.	X	X

Case 16. Chart 21.



STRY. JUVENILE G. F

CASE 17.—*J. S. (convict). Paresis, male, age 50. Expansive type. Duration two years. Three intracranial punctures. Three Swift-Ellis and seven Ogilvie treatments. No change. Demented. (See Chart 20.)*

Paresis in a male convict, serving a sentence of from one to seven years for breaking and entering. When received at the prison, March 5, 1914, it was noticed that he was insane. At that time had delusions of wealth, and unable to work. He was committed to this hospital August 17, 1914, and at that time showed the classical symptoms of an expansive type of paresis. He was weak and was confined to bed. Completely disoriented, with defective memory and somewhat demented. No insight.

Physically.—Diminished knee jerks and Achilles. Localized weakness in lower extremities. Motor functions affected, tremors, unsteady gait, incoordination, Romberg symptoms, and pupils unequal, sluggish reaction to light.

Progress and Treatment.—Patient has not materially changed since admission. He was given three S.-E. and three intracranial punctures and seven O. M. treatments without showing any change whatever. He is in bed because of weakness and is still exhilarated, excited and much demented. The cell count has been modified by the treatment, dropping from 125 to 3, then increasing and now about 14. The globulin, which was 4 +, decreased to +, then became 4 +, where it remains. The Wassermann reactions in both blood and spinal fluid have remained persistently 4 +. The case is still under treatment, but the prognosis is bad, as he is rapidly failing, both mentally and physically.

CASE 16.—*S. S. (see Chart 21). Juvenile paresis, male, age 24. Duration 1½ years. Demented, tabetic type. Fifteen Swift-Ellis and two O. M. treatments. No improvement. Dementing rapidly.*

Psychosis in a young man, age 24, with history of early peculiarities, unsociable, bad temper, but made a living at farm and factory work. A year before admission had a supposed sunstroke.

Onset.—About 18 months before admission gradually lost interest in work. Visual hallucinations probable. Admitted September 24, 1913.

Physical Examination.—Well-nourished man. General feeling of well-being. No subjective symptoms. Pupils dilated, sluggish reaction to light. Diminished patellar reflexes. Coordination not affected. Marked tremor of hands and tongue. Speech and writing defective.

Mentally.—Dull and stupid. Blank facial expression. Laughs and talks in a silly, foolish manner. Oriented for persons and time, but not for place. Memory defective. Grasp upon school knowledge poor. No insight, and judgment defective.

Treatment and Reactions.—Patient was given 15 Swift-Ellis treatments and two Ogilvie modifications. The cell count on admission was 78 and globulin +. Wassermann reaction in blood 4 +, in spinal fluid 2 +. After treatment the cell count dropped to 1, and globulin became negative. The Wassermanns, blood and fluid, both became negative and have remained so.

However, there was no improvement in his mental condition. In fact, he became more demented, so that at present he is unable to talk and presents the typical picture of the end stage of paresis. His physical condition is good and he has gained in weight. (See chart.)

CASE 19.—*W. P. Male, Russian Pole, age 28. Duration unknown. Demented type. Ten Swift-Ellis treatments. No clinical improvement. Reaction became negative, one year later all positive.*

Paresis in a Russian Pole, age 28. Nothing known of previous history. Became suddenly excited and delirious, with high temperature (104). On admission, September 4, 1913, was somewhat apprehensive, some delusions of persecution, and both auditory and visual hallucinations. Poorly oriented and memory defective. No insight, and judgment defective.

Physically.—Marked speech defect. Knee jerks exaggerated. Pupils, sluggish reaction to light. Other physical signs negative.

Reactions.—Lumbar puncture gave positive diagnosis, 20 cells per cc. with 4+ globulin. Wassermann, both blood and fluid, were 4+.

Treatment.—Patient was given ten Swift-Ellis treatments with no clinical results, but the cell count became normal and the globulin, blood and spinal fluid reactions all became negative. His treatment was discontinued for a year and tests made then showed that the cell count had increased to 76, the globulin and Wassermanns all strongly positive. Where the treatment has been discontinued as in this case, unless the treatment has been given long enough to eradicate the organism, there is always a tendency for the reactions to become strongly positive, thus showing that the negative results obtained during treatment were due entirely to the salvarsan and not to lumbar punctures merely.

CASE 20.—*J. M. (see Chart 23). Hungarian, male, age 47. Demented type. Duration nine months. Six Swift-Ellis treatments. No clinical improvement. Biological reactions influenced. A year later, without treatment, reactions strongly positive. Much demented.*

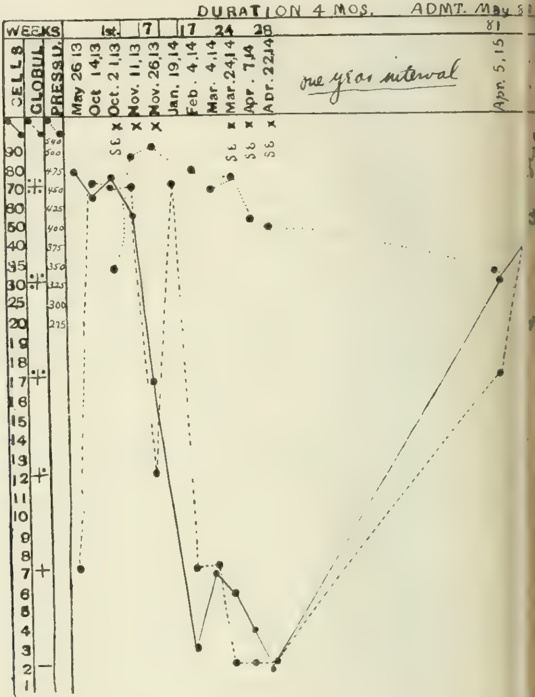
Paresis in a Hungarian man, age 47.

Personal History.—Came to United States six years ago. Illiterate, unable to read or write. Asphalt worker, earning $1.85 a day. Excessive alcoholic indulgences. Frequently intoxicated. Married 17 years ago, no children. No history of lues obtained.

Onset.—Nine months before admission. Left home and later became lost and picked up later by the police. Began to act queerly, collected rags and stones. Stopped work. Admitted May 8, 1913. Much demented and unable to speak English, so thorough examination impossible.

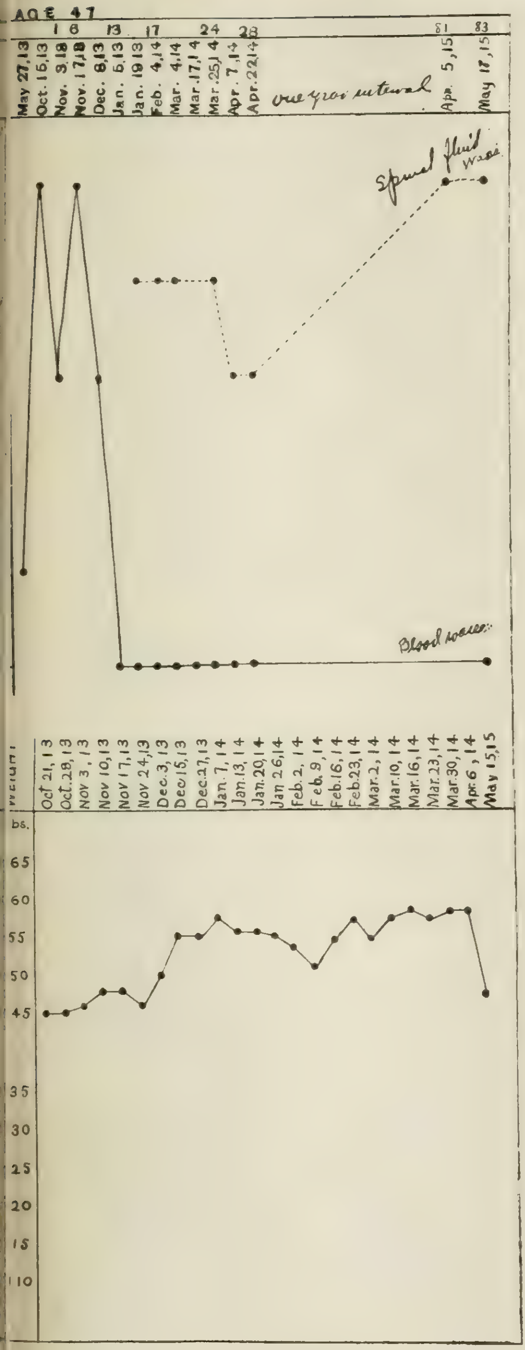
Physically.—Unequal knee jerks. Pupillary disturbances. Speech defects. Tremors.

Reactions.—Lumbar puncture confirmed diagnosis of general paralysis. Cell count 80 per cc., globulin 4+, blood Wassermann 4+, after six months without treatment, and the spinal fluid Wassermann 3+. The cell count taken three times from May to October was 80, 70 and 80, respectively. After three treatments the cell count dropped to normal and the globulin



CLINICAL	June 3 13	Apr.22,14	July 25,14	Sept ,14	Apr. 5, 15
DELUSIONS	XXX	XXX	XXX	XXX	XXX
HALLUCINA.					
ORIENTATION	XXX	XXX	XXX	XXX	XXX
MEMORY	XXX	XXX	XXX	XXX	XXX
SCHOOL KNOW.	XXX	XXX	XXX	XXX	XXX
CALCULATION	XXX	XXX	XXX	XXX	XXX
DEMEANOR	XXX	XXX	XXX	XXX	XXX
PERS. IDENT.	XXX	XXX	XXX	XXX	XXX
EUPHORIA	XXX	XXX	XXX	XXX	XXX
DEMENTIA	XXX	XXX	XXX	XXX	XXX
INSIGHT	XXX	XXX	XXX	XXX	XXX
PHYSICAL					
NUTRITION	XXX	XXX	X	X	X
PUPILS	XXX	XXX	XXX	XXX	XXX
TASTE	XXX	XXX	XXX	XXX	XXX
SMELL	XXX	XXX	XXX	XXX	XXX
CUT. SENSIB.	XXX	XXX	XXX	XXX	XXX
ABSENT KJ.					
EXAG. KJ.	XXX	XXX	XXX	XXX	XXX
MOTOR FUNCT.	XXX	XXX	XXX	XXX	XXX
SPEECH	XXX	XXX	XXX	XXX	XXX
GAIT	XXX	XXX	XXX	XXX	XXX
TREMORS	XXX	XXX	XXX	XXX	XXX
WRITING	XXX	XXX	XXX	XXX	XXX
ROMBERG	XXX	XXX	XXX	XXX	XXX

CASE 20. CHART


AGE 47
1
6
13
17
24
28
81
83
May 27,13
Oct. 16,13
Nov. 9,18
Nov. 17,18
Dec. 8,13
Jan. 6,13
Jan. 19 13
Feb. 4,14
Mar. 4,14
Mar. 17,1 4
Mar. 25,1 4
Apr. 7,14
Apr. 22,14
one year interval
Apr. 5,15
May 17,15
Spinal fluid Wass.
Blood wass.
Oct 21, 13
Oct. 28, 13
Nov 3, 13
Nov 10, 13
Nov 17, 13
Nov 24, 13
Dec. 3, 13
Dec 15, 13
Dec. 27, 13
Jan. 7, 14
Jan. 13, 14
Jan. 20, 14
Jan 26, 14
Feb. 2, 14
Feb. 9, 14
Feb. 16, 14
Feb. 23, 14
Mar. 2, 14
Mar. 10, 14
Mar. 16, 14
Mar. 23, 14
Mar. 30, 14
Apr. 6, 14
May 15, 15
bs.
65
60
55
50
45
35
30
25
20
15
10

EPH MORAN. G. P.

became negative. The spinal fluid Wassermann remained at 3 + and then 4 +, and after a year still strongly 4 +. The blood Wassermann became negative, and has remained so even after a year.

Without treatment for a year the cell count has risen to 50 per cc. and the globulin 4 +. This case, as in case 16, showed a return of all reactions to positive, with the exception of the blood Wassermann, when the treatment was discontinued.

CASE 21.—*L. V. (colored). (See Chart 24.) Colored man, age 46. Demented type. Duration one year. Seven Swift-Ellis treatments, three cerebral punctures, three Ogilvie method. No permanent improvement. Prognosis bad. Biological reactions markedly influenced.*

Paresis in a colored man, age 46. Nothing definite in family or personal history except that he received a blow on the head 18 years previous and that he never used alcohol. Married.

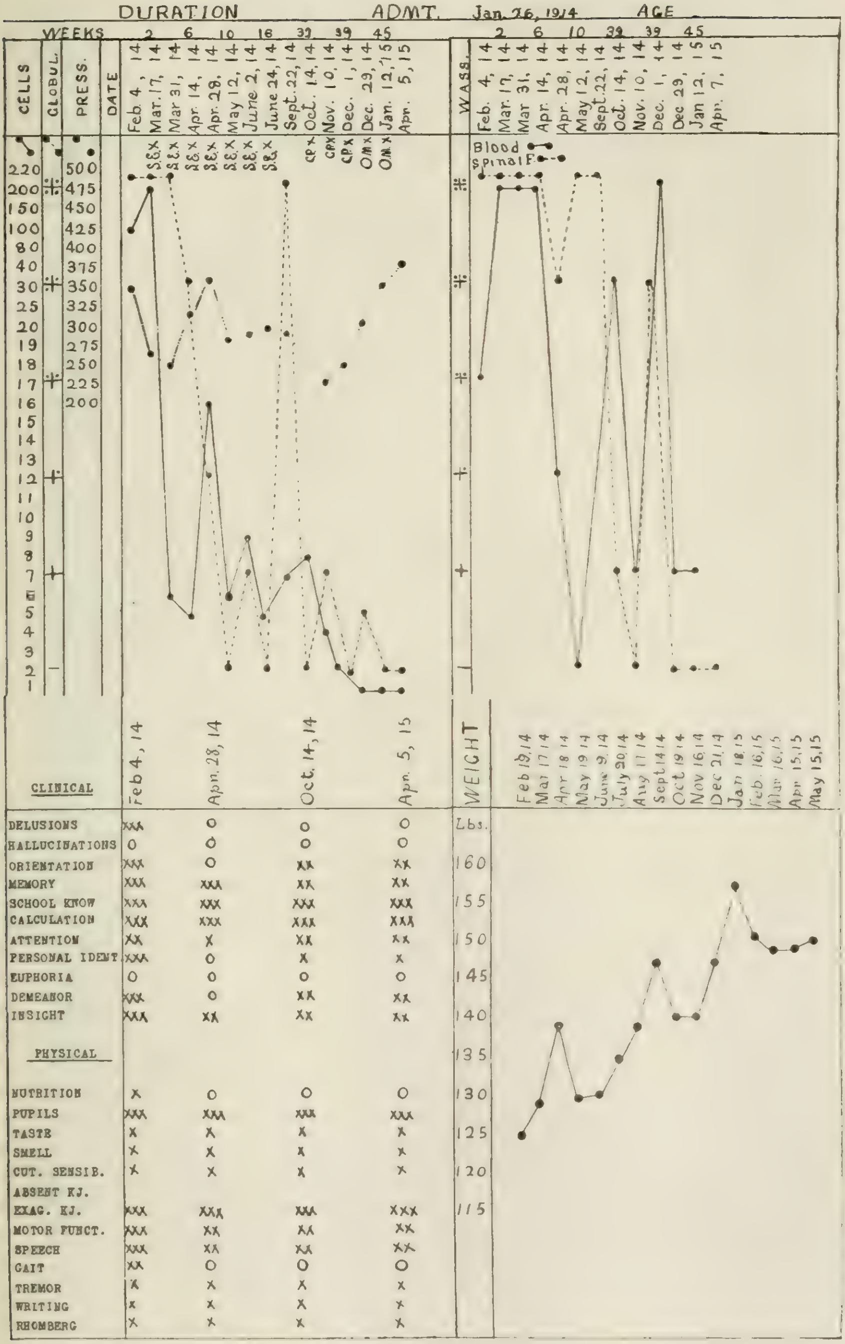
Onset.—About a year ago wife noticed patient was nervous and could not sleep, and frequently was unable to go to work. Lost interest in home and became forgetful. In September, 1913, had a shock which affected both lower limbs, but was not paralyzed. Became more irritable and was committed to the New Jersey State Hospital, January 26, 1914. On admission was oriented for time and place, but mentally was dull and stupid. Memory extremely poor and school knowledge defective. Insight and judgment poor. Evidently much deteriorated.

Physically.—Fair state of nutrition, weight 125 pounds. Pupils small and stiff to light. Smell and taste defective. Knee jerks exaggerated. Speech and writing defects. Gait unsteady.

Progress of Treatment.—Patient was given seven Swift-Ellis treatments with no clinical improvement, although there was a decided improvement in spinal fluid condition. The cell count dropped from 150 to 4 and the globulin content from 4 + to negative. Ten months after admission patient was given three cerebral punctures (Wardner technique). He became brighter mentally, but soon relapsed into previous demented condition. Later he was given two Ogilvie treatments, but without results, so treatment was discontinued. There was, however, a gain of 25 pounds in weight.

Reaction.—Marked improvement in cell count, which receded from 150 to 1, and a corresponding decrease in the globulin content from 4 + to negative. The Wassermann reactions in the spinal fluid remained at 4 +, but became negative after cerebral punctures. The blood Wassermann also fluctuated, but finally became negative.

Discussion.—This case is interesting because of the fact that after seven Swift-Ellis treatments there was no clinical improvement, although cell count and globulin had become negative. In order to test the efficiency of the cerebral puncture three were performed after the method of Wardner. At first there was some improvement, but it was not lasting and at present patient



CLINICAL	Feb 4, 14	Apr. 28, 14	Oct. 14, 14	Apr. 5, 15
DELUSIONS	XXX	O	O	O
HALLUCINATIONS	O	O	O	O
ORIENTATION	XXX	O	XX	XX
MEMORY	XXX	XXX	XX	XX
SCHOOL KNOW	XXX	XXX	XXX	XXX
CALCULATION	XXX	XXX	XXX	XXX
ATTENTION	XX	X	XX	XX
PERSONAL IDENT	XXX	O	X	X
EUPHORIA	O	O	O	O
DEMEANOR	XXX	O	XX	XX
INSIGHT	XXX	XX	XX	XX
PHYSICAL				
NUTRITION	X	O	O	O
PUPILS	XXX	XXX	XXX	XXX
TASTE	X	X	X	X
SMELL	X	X	X	X
CUT. SENSIB.	X	X	X	X
ABSENT KJ.				
EXAG. KJ.	XXX	XXX	XXX	XXX
MOTOR FUNCT.	XXX	XX	XX	XX
SPEECH	XXX	XX	XX	XX
GAIT	XX	O	O	O
TREMOR	X	X	X	X
WRITING	X	X	X	X
RHOMBERG	X	X	X	X

Case 21. Chart 24. Lewis Val.

is much demented, untidy in habits and presents the typical picture of an end stage of paresis.

This was not a favorable case for the cerebral puncture and the fact that he did not respond to this method of treatment after failure of Swift-Ellis method does not disprove the efficiency of the cerebral puncture method. But it was a severe test, and had the cerebral puncture been successful it would have settled beyond a doubt the question of the advantages of the two methods.

CASE NO. 34.—*G. O. (see Chart 25). Married man, age 37. Expansive maniacal type, spastic. Rapid progressive dementia. Duration one year. Only slight mental improvement after 12 Swift-Ellis treatments. Physically improved. Apparently demented. Prognosis bad. Two cerebral punctures (Wardner). One cerebral puncture (Cotton).*

Paresis in a married man, age 37, with negative family history. Uneventful personal history. Occupation, plasterer. Lues not ascertained from history.

Onset.—Gradual, about one year prior to admission. Became careless and indifferent in work and soon was discharged. He developed early marked expansive ideas, showed lack of judgment, and at first was easily controlled, wandered aimlessly about town. Suddenly became excited and violent, and was committed to the New Jersey State Hospital at Trenton, October 10, 1913.

Mental Examination.—On and since admission patient has talked continuously in unintelligent manner, saying over something that sounds like "Eine, meine, mine, mo." This is sung in a monotone all day long and it is difficult to obtain his attention long enough for him to answer questions. Then his productions show irrelevancy with marked and rather absurd expansive delusions. He was cross and irritable, frequently violent, and in order to treat him it has, with one exception, always been necessary to anæsthetize him, usually three times (intravenous injection, withdrawal of blood, and intraspinous injections). Apparently hallucinated at times. General mental organization shows marked deterioration. Disorientation and memory defects. Absolutely no insight.

Physically he was poorly nourished, but good musculature. Knee jerks exaggerated. Pupils stiff to light and marked arcus senilis. Taste and smell defective. Speech and writing defects and marked tremor of hands, tongue and facial muscles.

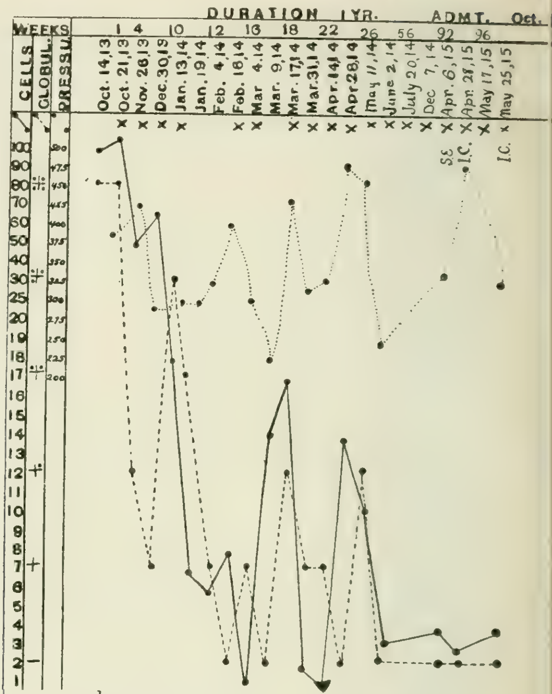
The course of the disease has changed but little since admission. He remained as above described. At times he would not sing and would answer questions, but usually incoherent, mistaking identity of those about him. Recently (after 14 months) he is quieter on the wards, will help to the extent of carrying trays at meal times, and dresses and undresses himself. He never enters into conversation and when questioned shows disorientation and lack of appreciation of his surroundings. He is apparently demented. He has improved physically (see chart). His weight has increased from 125 to 155 pounds, but physical signs have not changed.

Treatment and Reaction.—Patient has received 12 S.-E. treatments, all of which (with one exception) were given under anæsthesia. However, became violent when we attempted to treat him and had to resort to anæsthesia. While the physical improvement has been good, the mental condition has shown but slight change. But the biological reactions have been very favorably affected. The cell count dropped by gradual stages from 90 to 1 cell per cc., after eight treatments, then rose to 17, then normal, and later again to 16, but finally became normal. Because of his excited condition he has had no examination since June. The globulin content varied with the cell count, and to some extent was parallel to the latter, finally reaching negative. The Wassermann reaction was weak, positive in blood, and became negative after three treatments and has remained consistently so since. The spinal fluid Wassermann was negative on admission, became + + and later + + + +, finally becoming negative, and lately showing a tendency to become stronger as treatments have been less frequent. He was given a cerebral puncture (Cotton modification) April 28, 1915, but with no apparent results.

Discussion.—We are dealing here undoubtedly with a rapidly progressing disease process, which has made severe inroads in the cortex in a comparatively short time. The effect of the treatment has been to arrest the progress of the disease process, but the damage to the cortex has been so severe that no hope of any clinical improvement is possible. The biological reactions show that the spirochete can be eradicated, even though clinical improvement does not take place.

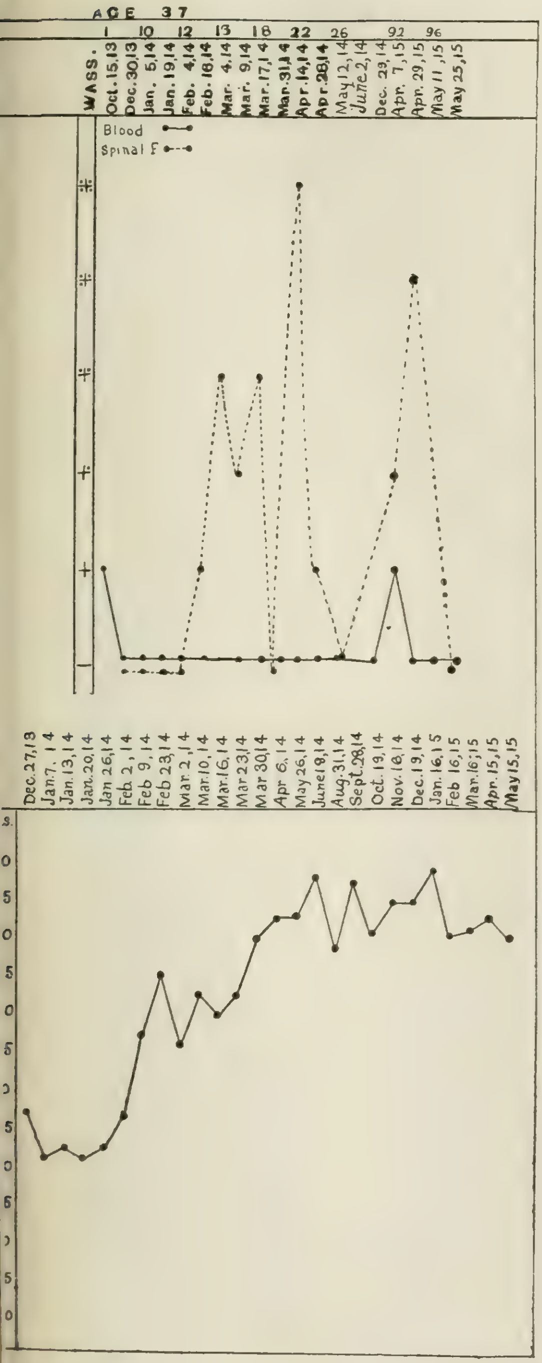
GROUP 4. RESULT DEATH. (6 CASES 19.5%.)

Seven cases have died during treatment and are here reported, principally to study the biological reactions in such cases. Six of these cases showed no improvement whatever; in fact, they were in the last stage of paresis when treatment was instituted and they were merely selected for experimental reasons; *i. e.*, to test the efficiency of salvarsanized serum in various stages of paresis. One case (31 H. L.) really belongs to the second group and has been placed in that group, as he had a distinct remission, finally succumbed to the disease. In the other six cases, however, there was no noticeable improvement clinically, although in all cases there was a decided improvement in the spinal fluid changes; *i. e.*, drop in cell count to normal and corresponding improvement

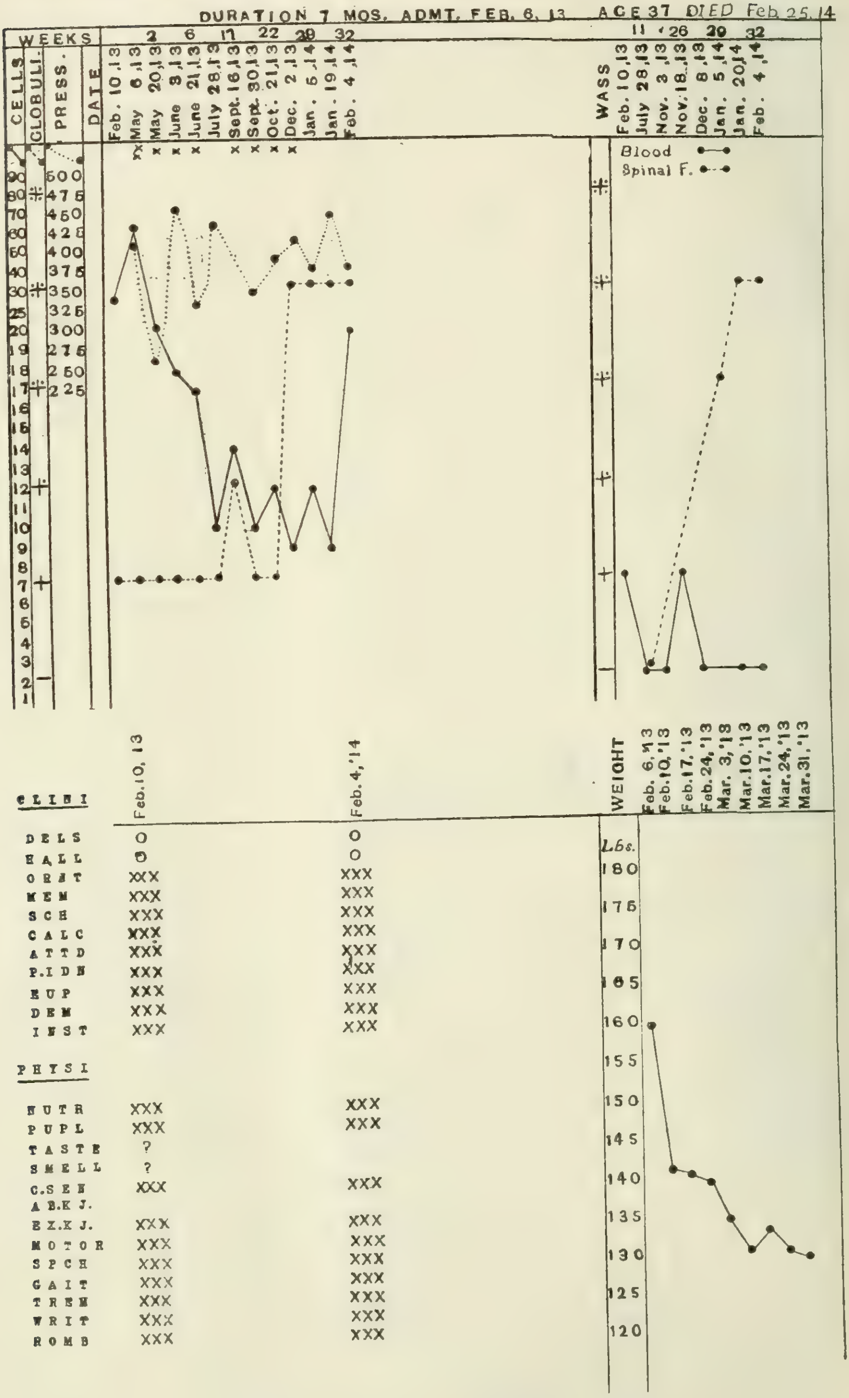


CLINICAL	Oct 15,13	Nov. 19, 13	Mar 27,14	June 15,14	Sept 15, 14
DELUSIONS	XXX	XXX	XXX	XXX	XXX
HALLUCINA.	XXX	XXX	XXX	XXX	XXX
MEMORY	XXX	XXX	XXX	XXX	XXX
ATTENTION	XXX	XXX	XXX	XXX	XXX
ORIENTATION	XXX	XXX	XXX	XXX	XXX
PERS. IDENT.	XXX	XXX	XXX	XXX	XXX
SCHOOL KNOW.	XXX	XXX	XXX	XXX	XXX
CALCULATION	XXX	XXX	XXX	XXX	XXX
EUPHORIA	XXX	XXX	XXX	XXX	XXX
INSIGHT	XXX	XXX	XXX	XXX	XXX
PHYSICAL					
NUTRITION	XX	X	O	O	O
PUPILS	XXX	XXX	XXX	XXX	XXX
TASTE	XXX	XXX	XXX	XXX	XXX
SMELL	XXX	XXX	XXX	XXX	XXX
CUT. SENSIB.	O	O	O	O	O
ABSENT KJ.					
EXAG. KJ.	XXX	XXX	XXX	XXX	XXX
MOTOR FUNCT.	O	O	O	O	O
SPEECH	XX	X	X	X	X
GAIT	O	O	O	O	O
CONVULSIONS					
ROMBERG	O	O	O	O	O
WRITING	X	X	X	X	X
TREMOR	X	XX	XX	XX	XX

CASE 34. CHA


AGE 37
1
10
12
13
18
22
26
92
96
WASS.
Oct.15,13
Dec.30,13
Jan. 5,14
Jan.19,14
Feb. 4,14
Feb.18,14
Mar. 4,14
Mar. 9,14
Mar.17,14
Mar.31,14
Apr.14,14
Apr.28,14
May 12,14
June 2,14
Dec. 29,14
Apr. 7,15
Apr. 29,15
May 11,15
May 25,15
Blood
Spinal F
++++
+++
++
+
+
−
Dec.27,13
Jan.7,14
Jan.13,14
Jan.20,14
Jan 26,14
Feb.2,14
Feb 9,14
Feb 23,14
Mar.2,14
Mar.10,14
Mar.16,14
Mar 23,14
Mar 30,14
Apr 6,14
May 26,14
June 18,14
Aug.31,14
Sept.28,14
Oct.19,14
Nov.18,14
Dec.19,14
Jan.16,15
Feb 16,15
Mar.16,15
Apr.15,15
May 15,15

Geo. Osw.



CASE 25. CHART 26. ROBT. MT. G. P.

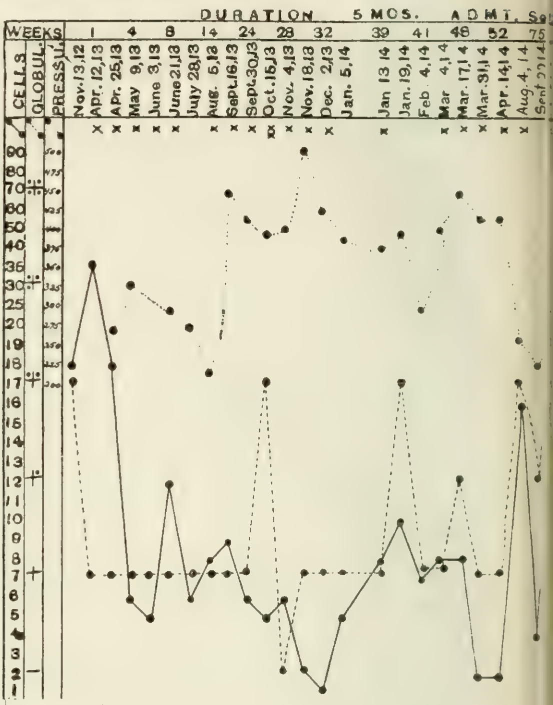
in the globulin content. In one case (25) the globulin increased in strength to 3 + from negative. In all cases except one (26) the spinal fluid Wassermann became stronger towards the end, but Wassermann reaction in the blood remained but little influenced. In none of these six cases was there any clinical improvement. In three of the cases the patients were bed-ridden and had to be literally carried to the operating room. In two of them, however (22 and 24), the sudden death following intravenous injection was disconcerting until the autopsy revealed the fact that the disease process was much further advanced than one would estimate by the clinical condition of the patient. In all cases the duration before treatment was over a year and the cases were of the rapid dementing type. Two of these cases (31 and 26) were of the tabetic type, one of which (31) had a distinct remission, and the other, although of shorter duration, showed no improvement under treatment.

CASE 25.—*R. M. Male, age 37. Rapid dementing type, and treatment 11 months after onset, with no improvement after eight treatments. Result death. (See Chart 26.)*

A case of well advanced paresis at time of admission, February 6, 1913, although time was only given as seven months. He was given eight treatments (Swift-Ellis), but with no effect upon clinical symptoms. The cell count was reduced from 60 to 9, but the globulin, after being a weak positive for several months, increased under treatment to 3 +, and later the cell count increased to 20. The spinal fluid Wassermann steadily increased from negative to 3 +, while the blood Wassermann became negative. This case was treated without much expectation of producing any change in patient's condition. He became rapidly worse and died February 25, 1914, one year after admission. Whole duration one year and seven months, considerably less than average duration of paresis, which is three years.

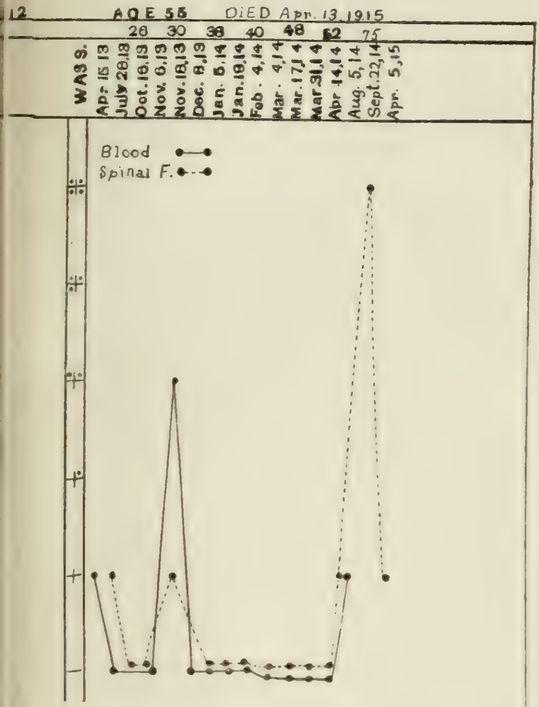
CASE 18.—*C. C. A colored man, age 55. Expansive demented type. No improvement after 18 Swift-Ellis treatments. Duration one year before treatment. Death. (See Chart 27.)*

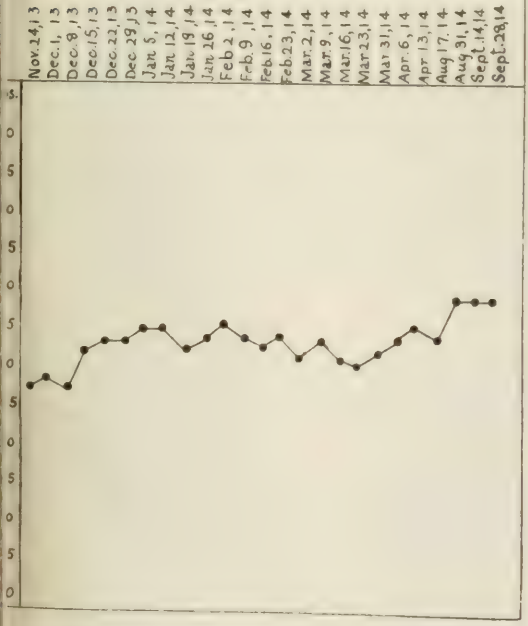
Paresis in a colored man, age 55. Married and had seven children, all living, except one who died at 6 months. Onset was gradual with loss of memory, change of disposition for five months. Upon admission, September 30, 1912, marked expansive ideas and extravagance and excessive alcoholism. When admitted physical examination showed sluggish pupils, complete arcus senilis, exaggerated knee jerks, tremors of eyelids, tongue, lips and hands. Writing and speech defective.



CLINICAL	Oct.2,12	Sept.13,13	Mar.27,14	
DELUSIONS	XXX	XXX	XXX	XX
HALLUCINA.	O	O	O	O
DEMEANOR	XXX	XXX	XXX	XX
ORIENTATION	XXX	XXX	XXX	XX
PERS. IDENT.	XXX	XXX	XXX	XX
SCHOOL KNOW.	XXX	XXX	XXX	XX
CALCULATION	XXX	XXX	XXX	XX
EUPHORIA	XXX	XXX	XXX	XX
INSIGHT	XXX	XXX	XXX	XX
MEMORY	XXX	XXX	XXX	XX
PHYSICAL				
NUTRITION	X	O	O	O
PUPILS	XXX	XXX	XXX	XX
TASTE	X	X	X	X
SMELL	X	X	X	X
CUT. SENSIBIL.	XX	XX	XX	XX
ABSENT KJ.				
EXAGG. KJ.	XXX	XXX	XXX	XX
MOTOR FUNCT.	XXX	XXX	XXX	XX
TREMOR	XXX	XXX	XXX	XX
SPEECH	XXX	X	X	X
WRITING	XXX	XX	XX	XX
GAIT	XX	XX	XX	XX
ROMBERG	XX	XX	XX	XX
CONVULSIONS	O	O	O	O

CASE 18. CHART 27.


12
AGE 55
DIED Apr. 13, 1915
28
30
38
40
48
52
75
WASS.
Apr. 15,13
July 28,13
Oct. 16,13
Nov. 6,13
Nov. 18,13
Dec. 8,13
Jan. 5,14
Jan. 18,14
Feb. 4,14
Mar. 4,14
Mar. 17,14
Mar 31,14
Apr 14,14
Aug. 5,14
Sept. 22,14
Apr. 5,15
Blood
Spinal F.
++++
+++
++
+
±
−


Nov.24,13
Dec.1,13
Dec.8,13
Dec.15,13
Dec.22,13
Dec 29,13
Jan 5,14
Jan 12,14
Jan 19,14
Jan 26,14
Feb 2,14
Feb.9,14
Feb.16,14
Feb.23,14
Mar.2,14
Mar.9,14
Mar.16,14
Mar 23,14
Mar 31,14
Apr.6,14
Apr 13,14
Aug 17,14
Aug 31,14
Sept.14,14
Sept.28,14
s.
0
5
0
5
0
5
0
5
0
5
0
5
0

Conov. Col. G. P.

Mentally.—Violent and restless with no appreciation of his surroundings. Marked exhilaration, feeling of importance, delusions of grandeur and wealth (money and diamonds). Disoriented for time and place, but not for persons. Marked memory disturbance, with fabrications of the polyneuritic delirium type. Tells of going to Princeton, of wife being in the hospital. No insight.

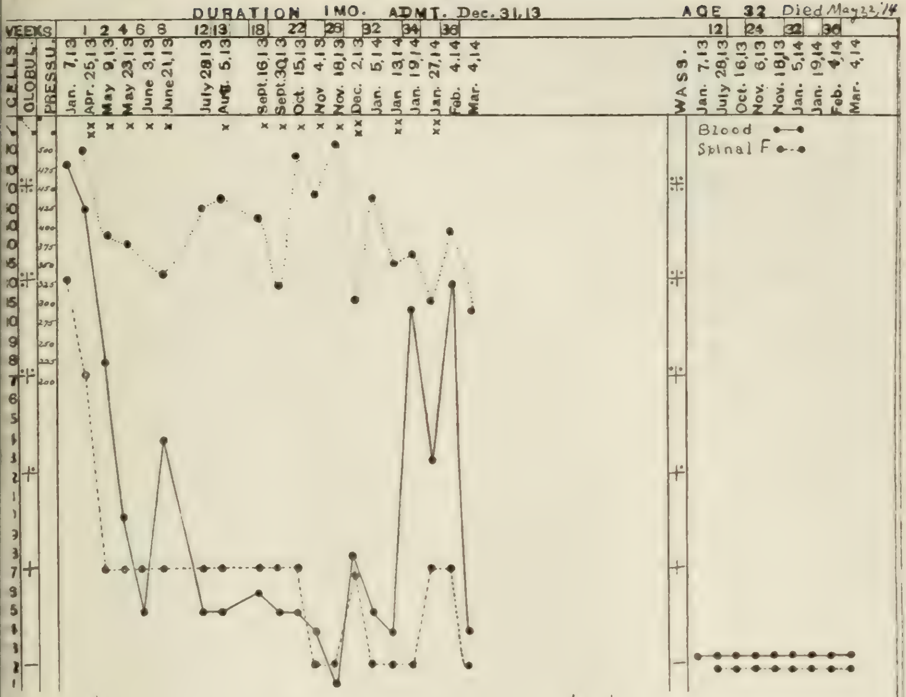
Progress.—Patient was treated by the Swift-Ellis method, treatment begun about a year after onset of psychosis, at which time patient was in a state of moderate deterioration or in an advanced stage of paresis. The biological reactions were considerably influenced by the treatment, as the cell count was reduced from 35 to 2, after some fluctuation. The Wassermann reactions in blood and spinal fluid were not pronounced, and at first were barely positive. Both reactions became negative, but after 18 treatments the spinal fluid Wassermann became strongly positive. His physical condition was influenced and improved by the treatment, but mentally, after the first month, he became steadily worse and died April 13, 1915, the whole duration being three years and eight months, about the average duration for paresis.

CASE 26.—*U. J. Colored man, age 32. Tabetic, rapidly dementing type. Fourteen Swift-Ellis treatments. Duration one year before treatment. No improvement. Died five months after treatment discontinued. Whole duration two years and five months. (See Chart 28.)*

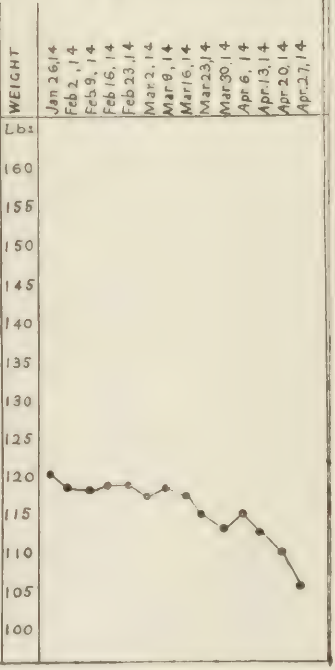
Paresis in a colored man, age 32, with history of syphilis 14 years prior to onset, which was one year before admission. The tabetic symptoms preceded the mental symptoms by several months or longer. Able to work as a waiter up to a month before admission, although he was extravagant and vain, thought white girls were in love with him. Sudden outbreak of hallucinations. Committed to the New Jersey State Hospital, December 31, 1912, and on admission showed the mental symptoms of a well advanced, expansive, demented paretic of tabetic type. He was not affected by treatment, although he was given 14 injections. At one time he was given three treatments with a heterogenous serum, and as noted in other cases the cell count showed an appreciable increase (from 5 to 40). Treatment was discontinued and he died five months later. This is another case of tabo-paresis which did not respond to treatment as he was too demented when treatment was instituted. The Wassermann reactions in blood and spinal fluid were persistently negative.

CASE 23.—*F. C. Expansive, demented case, age 52. Eighteen months' duration before treatment. Bedridden. Nine Swift-Ellis treatments. No improvement, gradually failed and died. Duration two years. (See Chart 29.)*

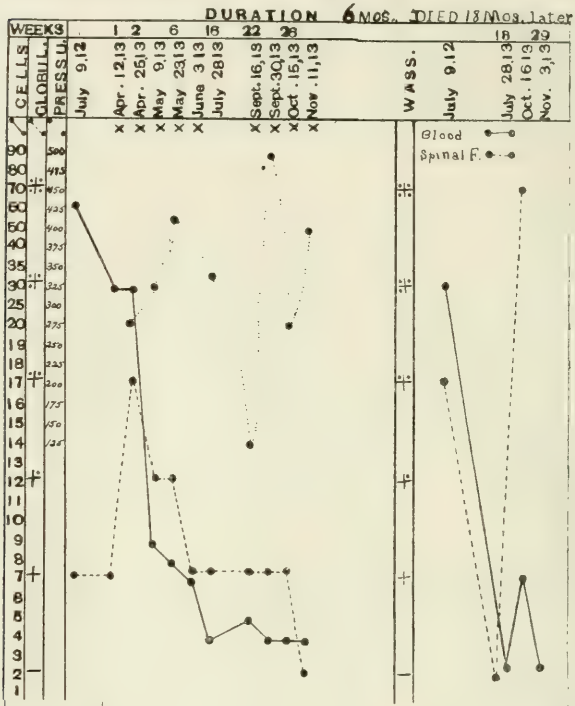
A case of paresis in a man, age 52, expansive type, who had become rapidly demented after entering hospital. He was bedfast and treatment was instituted without much hope of improvement, eight months after



LINICAL	Jan. 6, 13	May 29, 13	Nov 4, 13	Mar. 27, 14
ELUSIONS	xxx	x	xxx	xxx
ALLUCINA.	xxx	O	O	O
EMEANOR	xx	xxx	xxx	xxx
MEMORY	xxx	xx	xxx	xxx
ORIENTATION	xx	O	xx	xxx
PERS. IDENT.	O	O	x	x
SCHOOL KNOW.	xx	xx	xx	xx
ALCULATION	xx	xx	xx	xx
UPHORIA	xx	xx	xx	xx
NSIGHT	xxx	xxx	xxx	xxx
YSICAL				
TRITION	xxx	O	O	xx
PILS	xxx	xxx	xxx	xxx
STE	O	O	O	O
MELL	xx	xx	xx	xx
UT. SENSIB.	O	O	O	O
ABSENT KJ.	xxx	xx	xxx	xxx
EXAG. KJ.				
MOTOR FUNCT.	xxx	xxx	xxx	xxx
TREMOR	xxx	xxx	xxx	xxx
SPEECH	xxx	xxx	xxx	xxx
GAIT	x	xx	xx	xx
CONVULSIONS	O	O	O	O
VOMITING	xxx	xxx	xxx	xxx
ROMBERG	x	xx	xx	xx



CASE 26. CHART 28. UPTJN JOH. COL. TABETIC G. P.



CLINICAL	June 26,12	Apr. 12,13	Nov. 11,13
DELUSIONS	XXX	XXX	XXX
HALLUCINA.			
ORIENTATION	X	XXX	XXX
MEMORY	XXX	XXX	XXX
SCHOOL KNOW.	XXX	XXX	XXX
CALCULATION	XXX	XXX	XXX
EUPHORIA	XXX	XXX	XXX
PERS. IDENT.	X	XX	XXX
INSIGHT	XXX	XXX	XXX
DEMENTIA	X	XX	XXX
DEMEANOR	XXX	XXX	XXX
PHYSICAL			
NUTRITION	X	XXX	XXX
PUPILS	XXX	XXX	XXX
TASTE	XXX	XXX	XXX
SMELL	XXX	XXX	XXX
CUT. SENSIB.	XX	XX	XXX
ABS. KJ.			X
EXAGG. KJ.	XXX	XXX	XXX
MOTOR FUNCT.	XXX	XXX	XXX
SPEECH	XXX	XXX	XXX
GAIT	XXX	XXX	XXX
TREMORS	XXX	XXX	XXX
WRITING	XXX	XXX	XXX
ROMBERG	XXX	XXX	XXX

CASE 23. CHART 29. FRANK CARPT. G. P. AGE 52.

admission. He had to be taken out of bed and carried to the operating room for every treatment. He had nine Swift-Ellis treatments, but failed rapidly and died after 18 months in the hospital. The treatment in this case had no affect whatever on the disease process and autopsy showed an end stage of paresis. The cell count and globulin were reduced to normal and Wassermann reactions were also considerably influenced, but the spinal fluid reaction towards the last became strongly positive.

CASE 24.—*O. J. Swedish man, age 55. Onset three months before admission and 15 months before treatment. Expansive type. Physical signs well marked. Given six Swift-Ellis treatments. No change, several convulsions. Died two days after last treatment. Autopsy showed well advanced paresis in cortex and weak, flabby heart.* (*See Chart 30.*)

Paresis in a single Swedish man, age 55, with rapid onset three months before admission. Mentally somewhat expansive at first, but later rather dull and stupid, with marked memory defects. No conduct disorder, social on ward. Fairly well oriented. School knowledge fairly well retained. No insight.

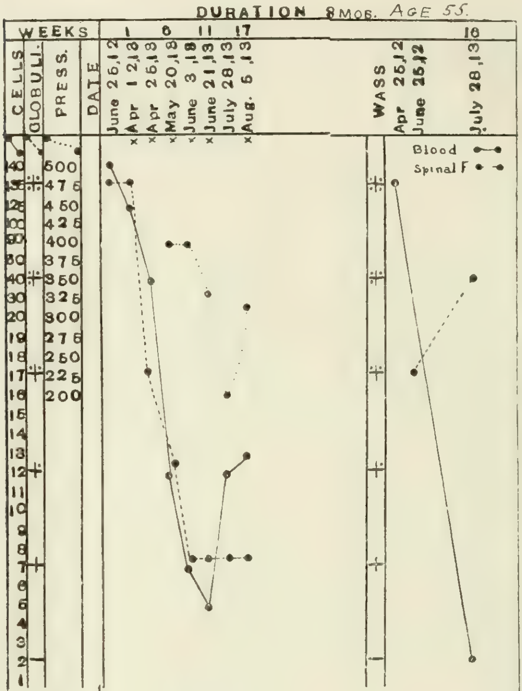
Physically, well nourished (210 pounds weight). Pupils unequal and stiff to light. Defective taste and smell. Cutaneous sensibilities impaired. Speech and writing defective. Unsteady gait.

Progress of Case.—Patient remained about the same for a year after admission. He had not materially failed either physically or mentally, so he was regarded as a favorable case for treatment, which was begun 15 months after onset. He was given six treatments (S.-E.) with no appreciable change. He had several convulsions just before last treatment and after last treatment he suddenly went into a comatose condition, after a convulsion following the intravenous injection, and did not rally. Died three days later. Temperature 105. His death was rather a surprise, as he appeared to be in good physical condition. But the autopsy revealed the cause beyond a doubt. In the cortex the changes were those of well-advanced paresis. Hardly any section of cortex was free from the process. It seemed hardly possible that the patient could appear so little affected when the process in the cortex was so far advanced. The heart was found to be enlarged and the muscles soft and flabby, marked myocardial degeneration. So it was not surprising that the patient died. The convulsions were probably superinduced by the treatment. Only one other case of paresis has died after treatment, and the second one, reported below, died after intravenous treatment alone.

CASE 22.—*L. M. Male, age 40. Demented type. Duration 19 months. Two Swift-Ellis treatments. Died after third intravenous injection. Autopsy, well advanced paresis. Myocardial degeneration. Focal type.*

Paresis in a married man, age 40, with nothing unusual in personal or family history.

Onset of Psychosis.—About 19 months before admission. Gradually became forgetful, lost affection for wife. Slight fainting attacks, affecting right side and speech. Speech became thick and slurring. Unsteady gait.



CLINI	Apr. 1912	Apr. 1913	Aug. 6, 1913
DELS	O	O	O
HALLS	O	O	O
MEMRY	X	XX	XXX
ORNT	O	X	XX
SCHL	O	X	XX
CALC	X	X	XX
ATTN	O	X	XX
P. IDE	O	X	X
EUPH	O	O	O
DEMT	O	X	XX
INST	XXX	XXX	XXX
PHYSI			
NUTR	O	O	O
PUPL	XXX	XXX	XXX
TASTE	XXX	XXX	XXX
SMELL	XXX	XXX	XXX
C. SEN	X	X	X
AB. KJ.			
EX. KJ.	XXX	XXX	XXX
MOTOR	XXX	XXX	XXX
SPCH	XXX	XXX	XXX
GAIT	XX	XX	XXX
TREM	XXX	XXX	XXX
WRIT	XXX	XXX	XXX
ROMB	XX	XXX	XXX

Case 24. Chart 30. Oscar John. O.

Admitted September 17, 1913. Mentally he was somewhat demented, indifferent and apathetic. Defective orientation. Memory defective. No delusions. Marked paraphasic speech disturbances. No insight.

Physically.—Well developed and well nourished, weight 142 pounds. Pronounced ptosis of both eyelids. Pupils irregular and unequal, sluggish reaction to light. Tremor of facial muscles, lips, tongue and fingers. Marked incoordination of movements. Unsteady gait, swaying in Romberg. Exaggerated knee jerks. Pain sense dull.

Progress of Case.—Patient had two Swift-Ellis treatments, but with no appreciable change in his condition. The cell count on admission was 18, globulin 4+, blood Wassermann 4+, and fluid Wassermann 4+. The cell count dropped to 11 and the globulin to +, and the Wassermann reaction remained unchanged.

The third treatment was given a month after the second. Previous to this all cases had been given neo-salvarsan, but this patient was given salvarsan. He seemed all right after the injection, and the next morning appeared as usual. He was up and dressed, but he became weak and was put to bed. Rapidly became unconscious, collapsed and died at 9.45.

The autopsy showed a well-advanced paretic process in the cortex, slight focal lesion over left hemisphere. Heart large and flabby, very anemic in color, myocardial degeneration.

The sudden death of this case was unusual, the only one in the series dying under intravenous injection of salvarsan. But the heart condition accounted for the sudden death. The case is similar to case 24, both cases having marked myocardial changes.

The patient was referred for treatment by Dr. I. Arthur Booth, of New York.

Locomotor Ataxia.

Unfortunately we have treated only a small number of locomotor ataxia cases. Altogether we have had only four cases, due to the fact that these patients, not having any mental trouble and not committed to the State Hospital, do no seek treatment here. The ages of these four cases were 48, 55, 61 and 70, respectively. From the advanced age of these patients it will be seen at once that the tabetic condition was in the end stage when they came under observation. In fact, the duration of two of these cases was 12 years, one 5 years and another 1 year. In spite of the long duration of the tabetic process three of the cases have shown very marked improvement. This is especially noticeable in case 29, a man 61 years old, in which the tabetic process was of 12 years' duration and for the last two years the patient was a helpless invalid, bed-fast, with no control of the bladder. The result of the treatment in this case was better than in the other three, and now after two years has elapsed since treatment was begun he has no more bladder trouble, can walk fairly well with a cane and goes to the city at will, and in general his condition is quite comfortable. The knee jerks which were absolutely absent when treatment was begun can be obtained slightly at the present time and the pupils react apparently better to light. Another case which showed marked improvement (case 28) had shown symptoms of tabes for one year only previous to treatment and after a period of nine months he also has shown marked improvement. When treatment was instituted he could not stand alone, had to be carried to the operating room. At the present time he walks up and down steps with the help of a cane, and his general condition is also better. The gait is still typically tabetic, while in case 29 the gait is more of a feeble character and would not impress one as being tabetic on observation. The third case, 48 years of age (case 27), is also a long case, 12 years' duration, but apparently of very mild symptoms until a year ago, when condition became rapidly worse. He has improved very much under treatment, although he is still in the hospital and undergoing treatment. In these three cases it can be said of the result that it was highly satisfactory, but we cannot claim that they are cured, as it is doubtful if they will ever be any better, but the symptoms have diminished very much, especially the gait and pupillary disturbances, so that they are comfortable, able to be up and about instead of being helpless bed-patients. In the fourth case the result was not so satisfactory. The man was 70 years of age and the duration was placed at five years, although probably longer. He showed rather severe reaction to treatment and altogether has only four treatments with a year's interval between the first two and the last two. There has been some improvement in his condition but very little.

Biological Reaction in Tabes.—From the four cases we have examined and treated there seems to be a marked deviation of the biological findings from cases of general paralysis. In two of the cases (27 and 63) the cell count was negative and the globulin also negative. In case 27, however, the cell count rose as high as 30 under treatment and globulin became 2 +. In the other two cases the cell count was fairly high and globulin content strongly positive, and both were reduced to normal by the treatment. The Wassermann reactions also show important deviations. In all four cases the Wassermann in the blood has been negative or barely positive and the same can be said of the spinal fluid reaction. The fact that the Wassermann reactions are negative and in two of the cases cell count and globulin negative, would seem to indicate that the active inflammatory process had subsided, that we are dealing with end stages in which the spirochetes had spontaneously been destroyed or in some way had spontaneously disappeared. This condition is analogous to the conditions found in prolonged cases of paresis of stationary type, where there is also a tendency for the reaction to become negative. In the case treated where the reactions have all been negative, while there has been some improvement, the result has not been as successful as in cases in an acute condition, and in these cases the reactions to the treatment have been rather severe.

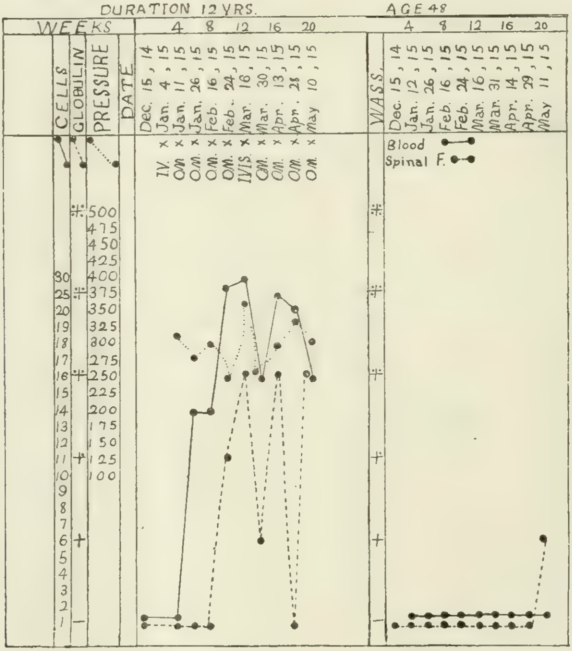
Treatment.—Our tabetic cases have been treated with both S.-E. and Ogilvie methods and the latter method seemed to be more successful, for there was less reaction to the treatment and the result seemed better. From our rather limited number of cases we are forced to conclude that these cases should be treated very mildly and not too frequently. In case 29 where we obtained the best results two treatments were given in 1913, which caused a remission of the symptoms and this lasted until a year later, when the bladder symptoms returned and treatment was again given. Here again four treatments over two weeks apart produced good results. In case 27, on the other hand, nine treatments have been given at periods no less than two weeks apart with good results. In this case the cell count became increased to 30 per cc., and globulin became 2 +, while the Wassermann reactions remained negative, we are of the opinion that the treatment should be modified to suit each individual case of tabes, and this modification should depend upon the clinical condition and the biological findings. In the more acute stages of the disease it is possible the treatment outlined by S.-E. would be more efficient. Unfortunately we have not had an opportunity to treat these types. Our experience with tabetic types is somewhat similar to our experience with the cases of tabo-paresis, where we found they could not stand very intensive treatment.

The results of the treatment were found to be more successful when treatment was given at long intervals and very small doses.

CASE 27.—*C. S. Locomotor Ataxia. (see Chart 32). Tabes in a man 48 years of age, 12 years' duration. Lues 25 years previous. Eight Ogilvie treatments, bi-weekly intervals. Result, good.*

Locomotor ataxia in a man, age 48, with negative family history. Had syphilis 25 years ago, for which he was treated thoroughly and pronounced cured by physician.

Onset of Tabes.—About 12 years ago. He suddenly developed lightning pains in legs and has had them at varying intervals since. Frequent girdle pains. Six months before admission to the hospital became rapidly worse, unable to get about, and had to stop work. Admitted here December 5, 1914.



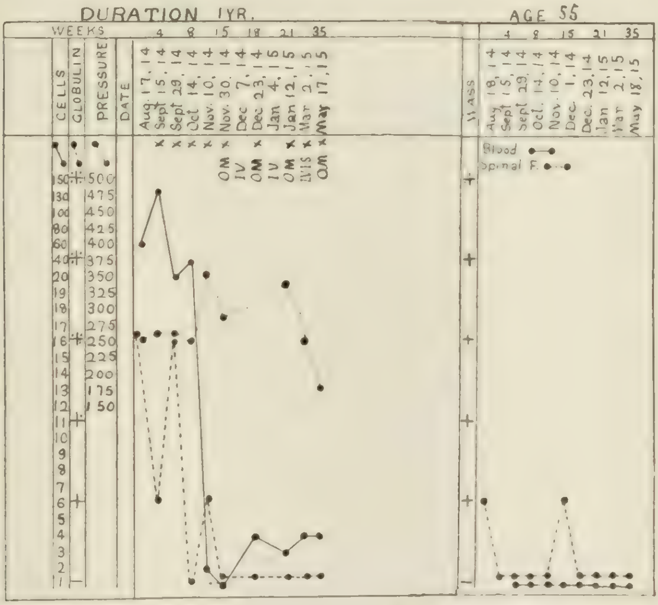
CASE 27. CHART 32. CHAS. S. TABES.

Physically, he was well nourished, weighing 140 pounds. Shooting pains in legs. Smell good. Pupils unequal and stiff to light. Hearing defective. Taste not impaired. Cutaneous sensibilities defective, both pain, touch and heat and cold impaired. Knee jerks and Achilles reflex absent. Romberg symptom. Incoordination, but gait fairly steady.

He exhibited no mental symptoms of paresis or other psychosis, but was depressed over his condition. Lumbar puncture gave absolutely negative findings. Cell count was less than 1. Globulin negative. Blood and spinal fluid Wassermann have been persistently negative. He was given the Ogilvie method and has had eight treatments at bi-weekly intervals. The cell count after first treatment has gradually increased, once reaching 30 per cc., and the globulin has also become positive, as high as 2 +, and five months after treatment was begun the spinal fluid Wassermann was weakly positive.

Colloidal Gold Reaction.—1 1 2 1 0 0 0 0 0 0 0.

The patient has shown considerable improvement in his physical condition. He has gained in weight and has had no shooting pains. His gait is better and incoordination not so marked. He is much more cheerful. Treatment is being continued and the prognosis is good, in spite of the fact that the case is of long duration and the process was probably quiescent.



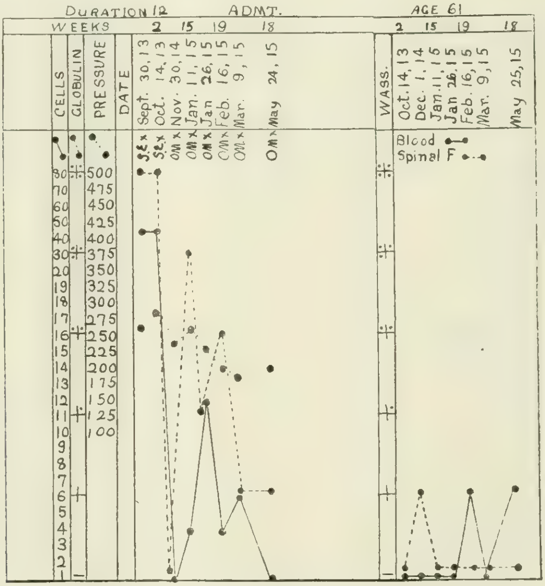
CASE 28. CHART 33. JOS. ELL. W. TABES DORSALIS.

CASE 28.—*J. E. Locomotor Ataxia (see Chart 33). Tabes. Male, age 55. Duration one year. Lues 12 years. Rapid case, unable to use legs, marked incoordination and lightning pains. Eight Swift-Ellis, four Ogilvie treatments. Marked improvement. No mental symptoms.*

Tabes in a man 55 years of age, with history of luetic infection 12 years ago. Occupation laborer. Married, but no children. Onset about one year ago. First symptoms tingling and numbness of legs and some difficulty in walking. Soon had lightning pains and had to give up work. Came to hospital for treatment August 17, 1914. At that time he could not walk and had to be assisted by attendants. It was impossible for him to walk upstairs and had to be carried to the operating room. He was given eight S.-E. treatments and four Ogilvie at intervals varying from two weeks to a month. He had some pain after each treatment (of both methods), and the treatments often had to be discontinued for a few weeks. However, he gradually improved and after about eight treatments he could walk upstairs and about the wards with the help of a cane, and can at times walk without any cane or other assistance.

Biological Reaction.—Before treatment the cell count was 150, and then gradually decreased to 4 per cc. The globulin was 2+ on admission and gradually became negative. The blood Wassermann has always been negative and the spinal fluid Wassermann was either (±) or negative.

Colloidal Gold Reaction.—4 4 4 4 3 3 3 2 1 1 0.



CASE 29. CHART 34. GEO. ST. TABES DORSALIS.

CASE 29.—*G. S. Locomotor Ataxia (see Chart 34). Tabes in a male, age 61. Duration 12 years. Voluntary commitment. Totally deaf. For two years bedfast, unable to stand alone. Much emaciated. Great improvement after two Swift-Ellis treatments. One year's remission, treatment interrupted.*

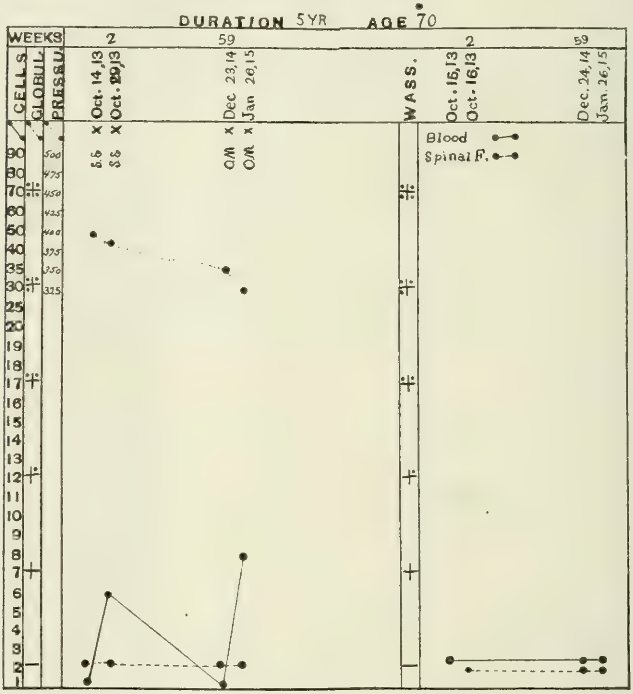
Locomotor ataxia in a married man, age 61. Nothing unusual in personal history. Date of luetic infection not known. Onset of tabetic symptoms about 12 years before treatment. Gradually lost control of legs and hearing became impaired. His symptoms made slow progress but steady, and for about two years he has been unable to work and had to go to bed because of his inability to walk. He lost considerable weight. He also had severe bladder disturbances, constant dribbling of urine, and no impulse to urinate. He was seen in consultation with Dr. G. H. Parker, of Trenton, in September, 1913. At that time he was unable to stand alone. Knee jerks were absent and pupils stiff to light. Marked incoordination. He was advised to come to the State Hospital as a voluntary patient for treatment. He was given two Swift-Ellis treatments with two weeks' interval between the first and second treatments. He became dissatisfied with the hospital surroundings and left. He had no other treatment for about one year. In the interval he gained 30 pounds in weight and showed marked improvement of his tabetic symptoms. He was able to walk about the city with the help of a cane and his bladder disturbances had cleared up. In November, 1914, he had an Ogilvie treatment, as his bladder symptoms were becoming worse. Otherwise he was in good condition. The next treatments were given January 11, January 16, January 26, February 16, and March 9. He continued to improve, but evidently the treatments were given too rapid and he had a moderately severe reaction, so treatments were discontinued until May, when he had the last. The result of treatment in this case was entirely satisfactory, and at present the patient walks quite well and is able to get about the city with a cane. His gait at present would not suggest tabes, but is more of a feeble type.

Reaction.—The cell count was 50 when treatment was begun and the globulin 4 +; after the first two treatments the cell count became 1 and the globulin negative. In a year's interval without treatment the cell count had changed but little, but the globulin had become 3 +. After subsequent treatments the cell count gradually came to normal and the globulin ±. The Wassermann reactions, as in practically all of our tabes cases, were very weak. The blood Wassermann was negative when treatment was begun and the spinal fluid was also negative. The blood reaction continued negative but on two occasions was slightly positive.

Prognosis.—While no one would claim that this patient had been cured of locomotor ataxia, at the same time the treatment has changed a helpless, bedfast, untidy invalid to a man able to be up and about, able to go around the city and take trips with his wife to Maine, etc. Altogether, the result of treatment can be said to be entirely satisfactory. He is still under treatment, although it is doubtful if much more can be accomplished except to help his bladder symptoms, which show a tendency to recur. His deafness remains unchanged. The knee jerks show slight reaction continued negative but on two occasions was slightly positive.

CASE 63.—*K. Locomotor Ataxia (see Chart 35). Tabes in a man, age 70. Duration five years. Cell count, globulin, and Wassermann reactions negative; four treatments. Severe reactions. Some improvement. Unfavorable prognosis.*

The beginning of the symptoms of tabes in this patient was placed at five years, but probably they were of much longer duration. He had taken all sorts of treatment, electricity, hydrotherapy, osteopathy, chiropractic and mechanotherapy, and finally plain massage. But in spite of all these cults he was gradually getting worse. He was seen in October, 1913, at which time he had absent knee jerks, stiff, contracted pupils, marked incoordination, typical tabetic gait, unable to walk without assistance. He also had various paresthesias, especially in fingers and toes, accompanied by numbness. There were no mental symptoms present.



CASE 63. CHART 35. TABES.

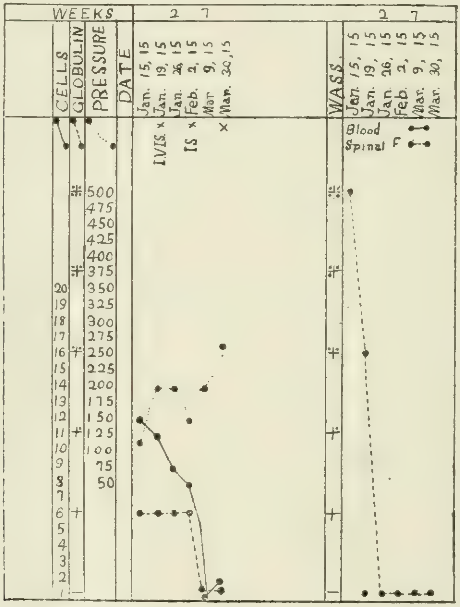
The cell count was negative (less than 1 cell per cc.), the globulin persistently negative, and both blood and spinal fluid Wassermann were and have been persistently negative. He was given two Swift-Ellis treatments in October, 1913, two weeks apart. After the second treatment patient had a severe reaction. He had to go to bed for several weeks and was quite collapsed, with severe headache and fever. He probably had an acute irritative meningitis, as the symptoms shown were the same as in two other cases (not tabes) who had such a condition. He recovered after this and no treatments were given for a year. In December, 1914, and January, 1915, he had respectively two Ogilvie treatments. The cell count after the second treatment increased to 8, but the other reactions remained the same.

Results.—The effects of treatment in this case have not been very marked, but the patient is in better physical condition. His disease has made no progress in the last 18 months, but the reactions to treatment were so severe that he refused to go on. The negative biological reactions in this case probably indicate that the active process has ceased; that the spirochetes are no longer present in the cord or membranes, and that we are dealing with the end stage or resulting damage without the presence of spirochete pallida, at least this assumption is justified by the results of treatment.

Luetic Meningitis.

We have treated so far three cases of luetic meningitis, two of the chronic type and one an acute condition. The acute case occurred in a boy 19 years of age (case 32) with history of luetic infection six months previous. He had one intravenous injection of salvarsan followed by mercurial treatment at that time. He had two S.-E. treatments with rapid recovery and is at present, 12 months later, entirely well. The cell count in this case was 700 per cm. with 4 + globulin and spinal fluid Wassermann 2+, and blood Wassermann+. He gained 20 pounds in weight and has had no return of the symptoms.

The second case (58), a baby, 4 years old, with history of similar nature two years previously. (See chart 37.) He had convulsions at that time, but seemed to improve, although he was never quite well. When seen in January, 1915, he was in a dull, stupid, restless condition, unable to talk, kept his body in an opisthotonos position. He improved rapidly under two S.-E. treatments with very small doses of salvarsan. The cell count in this case was low, 12 per cm., and very low globulin. Spinal fluid Wassermann 4 + and blood Wassermann negative. A few months after treatment he seemed to become worse and two months later he was given Ogilvie treatment. His mental symptoms entirely cleared up, but later he developed marked physical weakness, unable to stand alone and has remained in this condition since. It is possible that this case is not one of luetic meningitis and we may be dealing with a cortical involvement of the motor areas, but there are no suggestions of juvenile paresis. The third case is probably chronic luetic meningitis with sudden onset, convulsions and rapid collapse. The diagnosis was made by lumbar puncture and S.-E. treatment instituted at once. The cell count was only 20 at the onset, globulin strongly 4 + and spinal fluid Wassermann 4 +, but blood Wassermann negative. The cell count increased shortly to nearly 400 and showed marked fluctuations for some months. At one time there was an irritative meningitis due to the treatment, in which the cell count reached 2000, but rapidly subsided. The patient cleared up rapidly



Case 58. Chart 37. J. S. Age 58. Luetic Meningitis.

after the first few treatments, but developed a polyneuritic delirium with the accompanying symptoms of polyneuritis with general tenderness over nerve trunks. This was accounted for by the fact that he had been indulging in alcohol excessively for some months. The polyneuritic delirium slowly cleared up, memory returned and for one month he felt so well that he would not allow us to treat him. During that time he visited friends away from the city and apparently was in a normal condition. Suddenly at the end of the month he developed a persistent vertigo for which he had to remain in bed, but it was as noticeable on lying down as standing up. Treatment was immediately resumed at weekly intervals and after two months the dizziness gradually disappeared. At this time, five months after onset of acute symptoms, patient is slowly improving. He still shows some loss of memory, inclined to be playful at times. The globulin content has finally become negative and cell count varies between 5 and 10. After the first month Wassermann reaction was negative and blood reaction has been persistently negative.

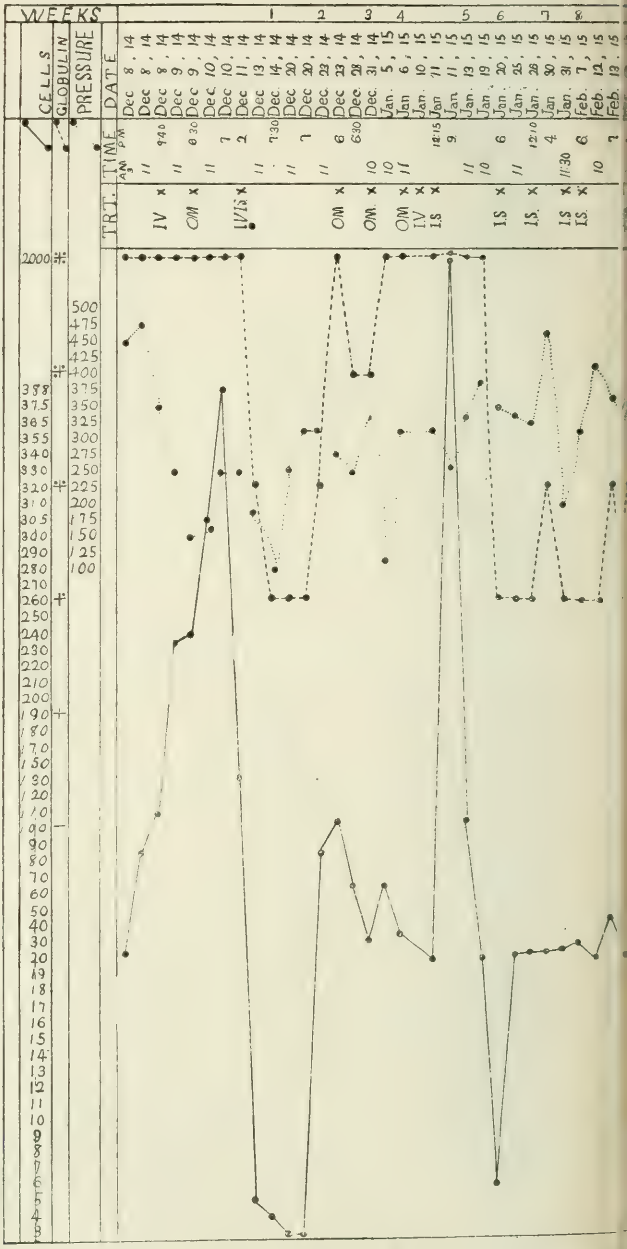
Colloidal Gold Reaction.—5 5 5 5 5 4 4 3 2 1 0.

The diagnosis in this case is not altogether clear, but from the absence of any motor symptoms cerebral syphilis has been eliminated and there has been no evidence of paresis. It is possible, however, that we are dealing with a case of cerebral syphilis and from our experience with these cases prognosis is not so good, if it were a case of luetic meningitis prognosis would be much better; although a chronic type of the case would influence the outcome somewhat. (See chart 38.)

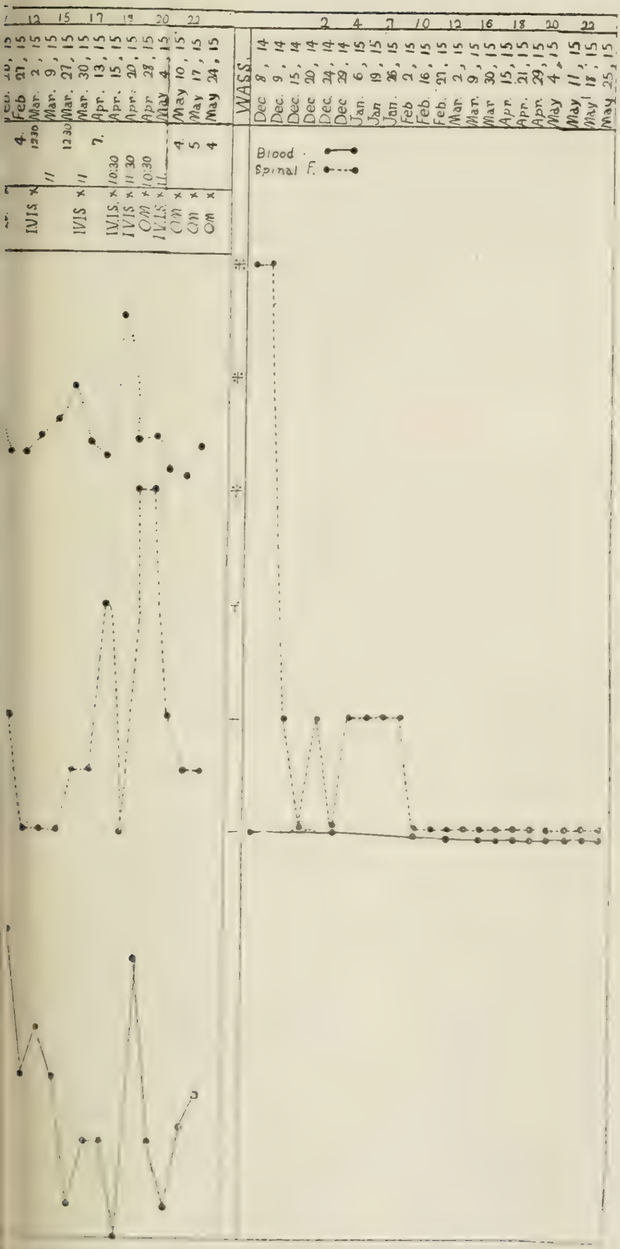
Case 32.—*G. S. Acute luetic meningitis (see Chart 36). Acute luetic meningitis. Male, æt. 19. Syphilis six months previous. Primary chancre and secondaries. One dose of salvarsan and mercurial treatment. Sudden onset. Headaches and delirium, fever. Rapid improvement and recovery, with two treatments (Swift-Ellis).*

Patient was a boy, aet. 19, with negative family history. Normal childhood, common school education. Occupation, salesman. In November, 1913, developed a chancre, followed by secondary eruption. About January 1, 1914, he was treated with one dose of salvarsan, followed by mercurial treatment, and eruptions subsided. This was six months before admission. About 19 days before admission developed severe headaches, with vertigo and occasional delirium episodes. The headaches had not responded to any treatment; in fact, he was becoming progressively worse. He became progressively worse, and was seen by writer, in consultation with Dr. W. J. Harman, of Trenton, May 13. At that time he was rational, but had severe headaches and some fever. A lumbar puncture showed 688 cells per cc. and 4 + + 4 globulin and positive Wassermann in blood and spinal fluid.

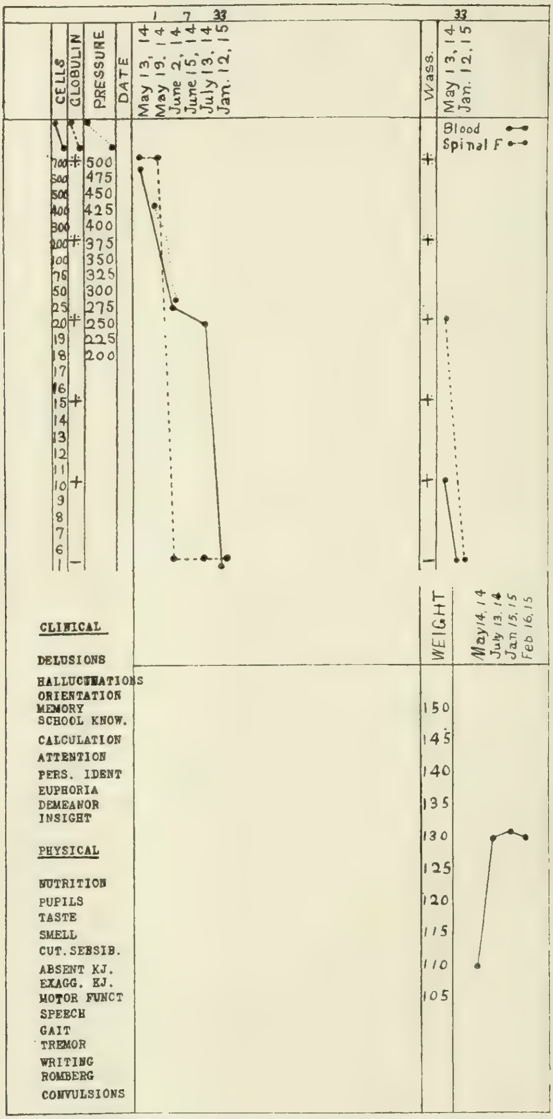
He was advised to come to the hospital, and he was admitted the following day. When admitted was in a mild delirium, which lasted for a day. He had temperature of 100°. His delirious condition was mild and his attention could be obtained. He was well oriented for time, place and persons, and had perfect insight into his condition. He was given two Swift-Ellis treatments, May 19 and June 2, with rapid improvement



CASE A. CHART 38



ic Meningitis



CASE 32. CHART 36. SCHUL. ACUTE LUETIC MENINGITIS.

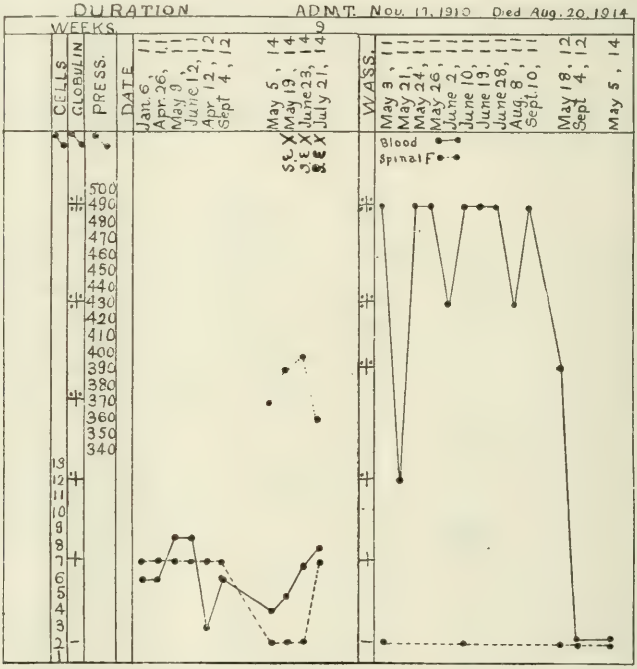
of symptoms, and left the hospital June 18, able to return to his work. The cell count dropped from 688 to 65 after first treatment, and then to 20 after second. He was seen July 13, and was apparently perfectly well. The Wassermann reaction in blood and spinal fluid became negative.

Discussion.—The attending physician, Dr. Harman, deserves especial credit in diagnosing this case and recognizing the need for intraspinous treatment. It is a unique case and one seldom seen by state hospital physicians. The satisfactory and successful treatment add another chapter to the efficiency of the Swift-Ellis method. It is barely possible that this patient might have been cured with intravenous injections of salvarsan, but such rapid and complete recovery could not be affected except through the intraspinous method.

Cerebral Syphilis.

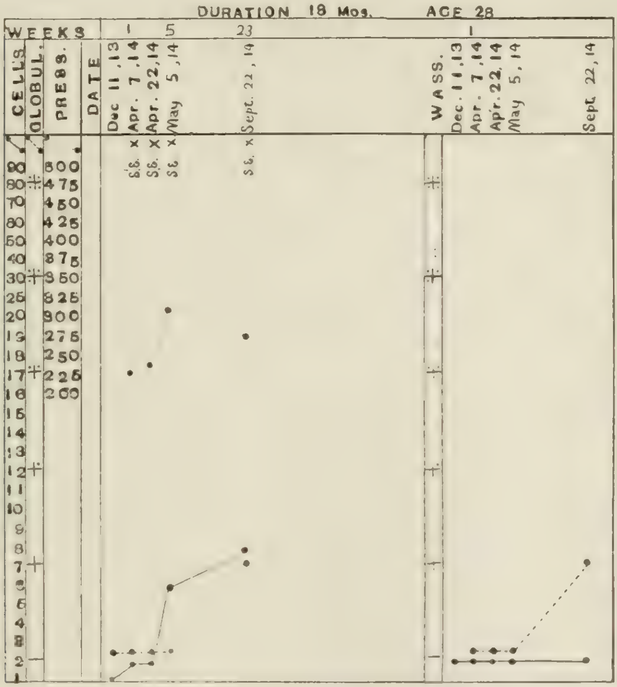
Three cases in our series were diagnosed cerebral syphilis, two of them on the physical signs and one case (66) died and the diagnosis confirmed by autopsy. In two of the cases there had been shocks, with hemiplegia and history of previous syphilis (49 and 50). In both of these cases the biological reactions were negative and apparently the specific process was limited to the blood vessels, thereby causing hemorrhage, with resultant hemiplegia. In both of these cases treatment apparently had no effect on their condition, although they were not treated for any length of time. The third case (66) is rather more important and will be given in detail. (See chart 39.)

The patient was a man 44 years of age. The duration of cerebral symptoms was six years and syphilitic infection occurred 18 years before. His wife was admitted a year before patient in a delirious condition and died two weeks later, and autopsy revealed a well advanced cerebral syphilis of fulminating type. When admitted patient had a tremor of the right lower leg, defective, small pupils, reacted well to light; hearing and taste defective; patellar reflexes much exaggerated, also Achilles reflex and slight ankle clonus. Gait was slow and of a spastic nature, unable to walk without support. Speech thickened, but there was no tremor in writing. At times voided urine involuntarily. Mentally he was quiet and orderly. Remained in bed and cooperated in the examination. He seemed to be in a confused condition. Memory was defective. School knowledge showed deterioration and insight and judgment was defective. He didn't believe his mind was affected, but appreciated his physical condition and the fact that syphilis might be the cause of it. He was admitted November 17, 1910, and in May, 1911, he was given intramuscular injections of salvarsan. There was some improvement in both mental and physical condition following this injection and he was able to be up and about, although he still had some defect in gait. He continued in this condition until May, 1914, when between May and July he was given three S.-E. treatments, but the results were unsatisfactory and he seemed to become much worse, and a month later, August 20, 1914, he died. Autopsy in this case showed definite lesions of diffuse cerebral syphilis. In this case the biological reactions did not suggest paresis. The cell count was always low, 7 to 9, the globulin reaction ± or −, the blood Wassermann 4 +, but spinal fluid Wassermann persistently



Case 66. Chart 39. Val. Kh. Cerebral Lues.

negative. The case was interesting from the fact that four years ago he improved very much following an intramuscular injection, but condition was made worse rather than improved by S.-E. treatment. It is also unique from the fact that his wife died of the same disease and autopsy confirmed diagnosis in both cases.



CASE 49. CHART 40. HOWD. SM. CEREB. LUES. ADMT. DEC. 3, 1912.

In the other two cases cited the diagnosis was made largely on the history and physical signs, for the biological reactions were negative. From our experience in these cases we are inclined to believe that salvarsanized serum has little effect on cerebral syphilis, although it is possible that in the earlier stages of the disease it might be more effective. These cases were all of long duration and the syphilitic process had probably become spontaneously limited. (For case 49, see chart 40.)

Efficacy of Various Methods of Treatment.

The reason for the different results obtained by similar methods in various hands can be explained only upon the ground of the type of cases treated. It is the case that is at fault and not the method. If we had treated only the types of cases in our groups 3 and 4 we would certainly have to condemn the use of salvarsan unqualifiedly, as no improvement was observed from its use. On the other hand, in our groups 1 and 2 the results are all that could be asked from any method. The greatest difficulty to be overcome is to get these patients under treatment before the disease process has become beyond curative help. We have reported our failures as well as our successes, in order to emphasize the importance of educating the physician and the public at large in this matter. All the failures have not been reported by others as yet, but it is safe to say that a majority of cases of paresis enter the hospital too late to be treated successfully. This accounts for the excellent results reported by the neurologists and others practicing outside of state hospitals. Such men as Fordyce and Ogilvie in New York, Eugene Riggs in St. Paul and others have had excellent results, because they have seen the patients in the early stages. The results at Bloomingdale and Sheppard and Pratt hospitals also have been excellent, because they treat largely private patients. These patients and their families recognize early that something is amiss and seek aid at once, while in the majority of state hospital patients the symptoms have been apparent for some years, the average duration being one and one-half years before admission. That is the reason we claim that the treatment in some hospitals has not been successful and has been condemned. However, we believe that the practicing physicians are capable of diagnosing these cases and in a short time better results are to be expected. Even now patients are referred for treatment much earlier than formerly. We are still undecided as to the best method to be adopted and consequently are using all the methods in order to ascertain which is preferable. Given an early case of paresis, from our experience we would say that the Swift-Ellis method was as efficacious as any. In other words, if the Swift-Ellis treatment fails to arrest the process we have not been able to produce better results in these cases by the other methods. But we do not claim that it is the exclusive method, although we think our results will compare favorably with the published results obtained by other methods. The criticism of the original method is that it has to be administered too slowly, because of the danger of the intravenous injections of salvarsan; and then treatment extends over a considerable period of time before permanent results can be obtained. It would seem logical to consider that the treatment should be as energetic as possible and the effects produced in the smallest possible time. And this is where the Swift-Ellis is at fault. So we have been combining the Swift-Ellis and Ogilvie methods on alternate weeks with good results. It is possible that several cerebral punctures or ventricular punctures would be advisable in each case.

The value of mercury and iodide of potassium as an adjunct to salvarsanized serum in the treatment of paresis and tabes is at present an unsettled question. It is employed by some, but others fail to see where any benefit results from the combined treatment.

We have not used mercury or iodide of potassium in any of our cases, and our results will compare favorably with the published results of others who have used the combined treatment.

It is possible that in the very early stages of the disease the combined treatment may be employed with good results, but we would not advocate it in every case. In fact it is possible that considerable harm may be caused by mercurializing the patient during the treatment by salvarsanized serum.

The experience in the treatment of paresis with large doses of mercury and iodides, in former years, would rather be against the view of their help in the present treatment. If anyone can show better results by their use we will be glad to change our views in this matter.

There has also been considerable difference of opinion as to the merits of salvarsan and neo-salvarsan and it might be well to state our experience with each. At first we used neo-salvarsan exclusively, although Swift-Ellis recommended the original form. Ogilvie and others were of the same opinion. The general opinion seemed to be in favor of salvarsan, so we have been using this for the last nine months. But our results have not been any better with the salvarsan than with the neo; in fact, in two cases we have had a pronounced irritative (sterile) meningitis with the Swift-Ellis method with salvarsan but we never had such an experience with the neo-salvarsan.

From our experience we can only say that we prefer the neo-salvarsan.

Conclusions.

In concluding we would emphasize (1) the fact that in the use of salvarsanized serum we have an agent which does cause definite arrest in paresis, which arrest includes improvement in the clinical symptoms, physical signs and a corresponding change in the biological reactions from positive to negative.

(2) That to be effective the case must be treated in the early stages, as advanced stages show no favorable reaction to the treatment.

(3) That the length of time is not always an indication of the severity of the symptoms, but the majority of cases cannot be helped after two or three years have elapsed.

(4) That treatment must be persistent and uninterrupted, grading the amount of dose and frequency of treatment to the condition of the patient.

(5) That tabo-paresis should be cautiously treated, usually with small doses and not oftener than three weeks.

(6) That the remission caused by the treatment cannot be compared to spontaneous treatment, for the percentage in the former is 35.5 per cent and in the latter case only 4 per cent.

(7) That the change in the cell count, globulin content, blood and spinal fluid Wassermann reactions are the direct result of the treatment and not to be compared with the variation found in untreated cases of paresis.

(8) That the efficacy of the treatment depends not upon the type of method used but upon the stage of the disease.

(9) Hence the necessity for early diagnosis in paresis and prompt treatment as soon as possible.

In conclusion I wish to express my thanks and appreciation for the courtesy and assistance of Drs. Swift, Ellis and Ogilvie in giving very helpful suggestions in the carrying on of the work; to the members of the staff at the State Hospital at Trenton for the use of the clinical records made by them, and especially to Dr. Stevenson for his valuable assistance in the treatment of the patients. I am also deeply indebted to Mr. Williams, bacteriologist in the laboratory for the faithful and arduous work in making the Wassermann tests, and to Miss Lovett, technician in the laboratory, for her valuable work in examining the spinal fluid, and for her excellent charts, and hereby express my thanks to each. To the nurses and attendants who have assisted weekly in the operating room I am also much indebted.

FOCAL LESIONS OF THE CORTEX OF THE LEFT ANGULAR GYRUS IN TWO CASES OF LATE CATATONIA.*

By E. E. SOUTHARD, M. D.,
Pathologist, State Board of Insanity, Director of Psychopathic Hospital, Boston, Mass., and Bullard Professor of Neuropathology, Harvard Medical School, Boston, Mass.,

AND

M. M. CANAVAN, M. D.,
Assistant Pathologist, Massachusetts State Board of Insanity; formerly Pathologist, Boston State Hospital.

ABSTRACT.

I. Introduction.
    Relation of the two angular gyrus cases to previous anatomical work on dementia præcox.
    Former work did not include focally destructive lesions.
    "Late" catatonia and presenile psychoses.
    Arteriosclerotic mental disease.
    Melancholia.
    Campbell on parietal lobes, angular gyrus.
    Question of visual function of angular gyrus.
    Alexia and the angular gyrus.
    Conjugate deviation.
II. Case A.
    Clinical history.
    Autopsy.
    Microscopic study of focal arteriosclerotic lesion of angular gyrus.
III. Case B.
    Clinical history.
    Autopsy.
    Miscroscopic study of solitary tubercle of angular gyrus.
IV. Summary.
V. Conclusions.

---

* Being Scientific Contributions of the State Board of Insanity, whole number 119 (1915.22). Read at the 71st annual meeting of the American Medico-Psychological Association, Old Point Comfort, Va., May 11-14, 1915. *(Bibliographical Note.*—The previous contribution (1915.21) was by C. S. Rossy, entitled "Comparison of Mental Gradings by the Yerkes-Bridges Point Scale and the Binet-Simon Scale," submitted to the American Journal of Psychology, September, 1915.)

1. INTRODUCTION.

The reasons for reporting these cases are several and distinct. Of course, we mean by our title to suggest a genetic relationship between the focal lesions and the subjects' symptoms. Yet we cannot offer proof of such relationship and are in one sense merely hoping to excite others to opposition or to similar reports. In the next place, however, it is undeniable that every case of truly focal lesion in any portion of the brain's silent areas needs reporting for the purposes of future compilation. And, in particular, lesions of the angular gyrus merit attention because of the very various claims made by experimenters and clinicians concerning its function.[1] Lastly, the fortunate peculiarity of the present lesions—their superficiality and virtual limitation to the grey matter—suggests a special value for these cases in proving the almost purely associational (non-projective) nature of the angular gyrus.

First, concerning the possible relationship between the lesions and the symptoms, we may call attention to the fact that the lesions lodge well within the confines of the posterior association area of Flechsig and that the lesions appear to be accompanied by no structural disorder of the projection system. Hence we might well be entitled to consider that the functional results of these lesions would either be *nil* (or negligible as amounting merely to an undemonstrable minor memorial or conceptual defect) or else in some sense mental. If mental, we might naturally suppose some disorder of memory or of conceptual power, possibly some functional loss which would contribute to a form of aphasia or other disorder of the thought-speech mechanism (see below).

Perhaps what most attracted us to the analysis of these cases was the possibility that they would contribute to the statistical conclusions put forward by Southard in 1910[2] and in a measure confirmed in 1915[3] concerning the relationship between catatonic and parietal lobe lesions. We may recall that Southard found that some *86 per cent* of his series of *dementia præcox cases showed lesions* and that four groups of cases could be separated out on the basis of focal atrophies and sclerosis in particular areas. One of these groups was a group termed post-Rolandic and included cases with lesions in the postcentral and superior parietal regions and in the occipital region. It was those cases with *postcentral and superior parietal lesions* which showed catatonia. Likewise, at that time Southard described a cerebellar group with catatonia (recalling the not exactly similar theoretical contentions of Kleist[4]) and a small group of infra-Sylvian cases (too small for correlations, although this gap has since been made good by a more extensive analysis of new cases, 1915). Then there was a good-sized group of pre-Rolandic or frontal cases with paranoic features predominant.

That 1910 series was, on the whole, rather deficient in cases with lesions in the more inferior portions of the posterior association area, and we were by consequence watching for such.

No one was more surprised than the physician most acquainted with the first case clinically, Dr. S. W. Crittenden, to learn at autopsy that the case was one of cerebral cyst of softening, since (barring the initial fainting spell) there had been no features to suggest cerebral arteriosclerosis, and the diagnosis had lain between *involution-melancholia* and *catatonic dementia præcox*. In fact, had it not been for the well-established onset at 43 years of age, there might not have been the slightest doubt of the propriety of the diagnosis *catatonia*.

Curiously enough, when the second case came to autopsy, the physician in charge, Dr. Wm. W. Dobson, remarked that this case was one of dementia præcox and in view of the contentions of one of the writers as to the parietal correlations of dementia præcox, as well as the results in the first case, inquired whether we might not also in this case find an angular gyrus lesion. The astonishment of all may be imagined when the tubercle was found in the appropriate place.

We may recall that the 1910 series of dementia præcox cases was so drawn as intentionally to exclude all cases of a decidedly "organic" appearance. Thus, had the present case been autopsied at Danvers during the years just preceding 1910, it would *not* have been used to build up the percentage of 86 having focal atrophies or scleroses. In fact eight cases of dementia præcox were actually excluded from the analyzed Danvers material on the score of marked arteriosclerotic changes (as well as five with marked generalized brain atrophy and 11 with marked chronic diffuse leptomeningitis). Some undoubted and beautiful cases of dementia præcox of a group to which the present case may belong were thus excluded from the 1910 analysis in which *complications* had rigorously to be shunned. Some day that more "organic" series of dementia præcox cases should be carefully analyzed. Meantime the present case may serve as an example.

What is *late* catatonia? No extended analysis of the literature is necessary for the present note, and we will content ourselves with abstracting Kraepelin's most recent statements. Kraepelin states (1913) that 3.3 per cent of his series of over a thousand (1054) cases of dementia præcox took their rise between the 40th and the 45th year (also 1.2 per cent between 45 and 50, 1.1 per cent between 50 and 55, and 0.2 between 55 and 60).[5] Kraepelin mentions Petrén's 24 cases of catatonia with onset after 40 (including six between 50 and 55, as well as one at 58 and one at 59). Schröder also reported a case with onset at 59. Zweig reported five cases with onset after 40. Schröder reported 16 cases of *Spätkatatonic* (earlier attacks in four).

Those involutional cases which Kraepelin regards (1913) as most open to the suspicion of being dementia præcox are characterized by an onset with *apprehensive excitement* and *depressive delusions* together with *catatonic signs, automatism, inaccessibility, resistiveness, stereotypy of posture and movement.* These cases then speedily terminate in pronounced mental deterioration (occasionally there may be a transient period of improvement at first). Kraepelin also mentions certain paranoid forms which may seem to warrant the diagnosis late catatonia. Kraepelin has no decisive word on this topic and relegates most of the pertinent discussion to his chapters on presenile and paranoid mental disease.

Turning to Kraepelin's latest work on presenile mental disease (1910) we find late catatonia considered as very probably a disease of quite different stamp from the common earlier type of catatonia.[6] "So long as we are completely in the dark as to the causes and nature of catatonia," says Kraepelin, "it cannot be denied that the process which comes on as a rule in youth may sometimes set in later—a point for anatomy to decide." Whereas formerly Kraepelin held that the climacteric might produce the same sort of results as adolescence, he has latterly become convinced that the late cases do not show the same sort of structural changes as the early cases.

To the above sketched clinical description, Kraepelin adds a few other clinical features in these late cases, *e. g., rhythmic movements, impulsive acts, incoherent, disconnected talk,* and says that, in addition to excited and apprehensive delusional states, there may be cases showing gayety and delusions of grandeur.

It will be shown below that our cases fit fairly well with the main lines thus drawn by Kraepelin for late catatonia. However, inasmuch as at autopsy in the first case, we arrive (however unexpectedly) upon cortical arteriosclerosis, it may be well to summarize from the same Kraepelinian source (1910) the clinical findings in arteriosclerotic insanity.[6] It will require no thorough study of our case to show how far removed it is from the usual frame of arteriosclerotic insanity.

There are, according to Kraepelin, two main groups of arteriosclerotic mental diseases: 1. A group in which the total psychic *personality* becomes gradually altered, long before there is evidence of mental defect (some of these cases are epileptoid; some progress slightly, others more rapidly; all are rather states of mental weakening than severe dementias); 2. a group in which *sharp seizures* set in early and *paralyses* occur but *mental changes* remain slight (these cases suggest lesions in the larger vessels) until years have passed.

Our first case must surely fall into the former group clinically, if into either group; yet the brain lesion would rather suggest the second group. As a matter of fact, it does not appear that this case ever gave rise to the suspicion of arteriosclerotic mental disease (no bodily weakness until the later stages of tuberculosis, no unsteadiness, incoördination or tremor, no certain evidence of amnesia, no disturbance of speech).

If our first case be not of catatonia, it may possibly be of melancholia in the Kraepelinian sense. It may freely be granted that the case shows various phenomena found in melancholia. We ground our diagnosis on *apprehensive excitement, depressive delusions, inaccessibility, resistivism, mutism, stereotypies of posture, stereotypies of movement and speech, rhythmic movements, impulsive acts, incoherent and disconnected affectless talk, episodes.* These phenomena not only form the vast majority of those which Kraepelin describes as characteristic of late catatonia, but are also in the main not characteristic of melancholia. The possession of certain traits also found in cases of melancholia cannot be said to militate against the diagnosis late catatonia. In any case none would, we suppose, assert that either of the present cases is a typical case of melancholia.

In the above discussion, we have preferred to deal wholly with the Kraepelinian categories and naturally do not object to any critics who may choose to analyze our cases from some other point of view. Adopting the Kraepelinian point of view, we are merely seeking to follow Kraepelin's dictum that " anatomy must decide " in this group.

Turning now to a consideration of the angular gyrus and the possible results of its injury, we find the literature rather full and somewhat dubious.

The parietal area starting with the *precuneus* on the mesial brain surface, includes on the lateral brain surface the *postcentral gyrus* back of the Rolandic fissure and the (superior) *parietal gyrus* at right angles to the postcentral gyrus and running back to the parieto-occipital fissure; within the angle made by the postcentral and (superior) parietal gyri is a sub-region sometimes known as the *inferior parietal lobule*, containing from before backward the *supramarginal gyrus*, the *angular gyrus*, and the often less definite *posterior parietal gyrus*. Thus, could we trust the anatomical landmarks as affording any index or suggestion of functional differentiation, we should have to consider six constituent regions of the parietal lobe (1. postcentral, 2. superior parietal, 3. supramarginal, 4. angular, 5. posterior parietal, 6. precuneus).

If we turn to the cortex histologists, we find that Campbell (1905) differentiated cortex of but four types in this region, *viz.*, the postcentral, the intermediate postcentral, parietal, and common temporal types.[1] As to the controversy over the histological differentiation of the postcentral gyrus, we need not here concern ourselves; nor yet with Campbell's objections to Flechsig's claim of a special supra-angular portion of the superior parietal gyrus, said to ripen early (myelogenetic area 14). The parietal area of Campbell covers the precuneus, the superior parietal gyrus and the anterior part of the supramarginal gyrus.

Concerning the angular gyrus, Campbell first remarks, " The inferior boundary on this surface is the hardest of all to settle; approximately the ramus horizontalis (interparietal fissure) along with the ramus occipitalis of the intraparietal fissure form a dividing line, but these sulci certainly do not constitute a precise limit, for although it is exceedingly difficult, almost impossible, to determine the exact point where " parietal " cortex ends and " temporal" begins, on account of confusion of type, yet I think it correct to say that the "parietal" type tends to cross the horizontal sulcal line and to trespass on the upper part of the angular gyrus, as well as on the upper and anterior part of the supramarginal convolution."

If this be true, then it may be conceived as possible that a few centripetal projection fibers do reach a portion of the angular gyrus, although there seems to be reason for supposing that not many such reach any portion of the parietal area of Campbell.

In so far then as the angular gyrus may partake of the nature of the parietal cortex, we may, in default of more exact knowledge, agree that it has in part a rerepresentative function with respect to sensory impressions (Hughlings Jackson's line of thought); the major portion of the angular gyrus is regarded by Campbell as belonging to the common temporal cortex as defined by him (see Campbell's diagram, p. 158). From Campbell's general adherence to the Jacksonian idea of levels, we assume that he would consider (a) postcentral, (b) intermediate postcentral, and (c) parietal to be (a) receptive, (b) representative and (c) rerepresentative.

Campbell states that with respect to a left-sided *word-hearing* center in the angular gyrus, he can find no histological evidence of differences on the two sides (p. 173). Larinow states that he has produced movements of the ears in animals by faradization of the angular gyrus (C. p. 262). Ferrier also produced lateral movements of the eye (and also of the head?) toward the opposite side by stimulation of the angular gyrus. But Sherrington and Grünbaum failed to elicit any movements (in the higher apes) by stimulation of the angular gyrus.

Ferrier thought that the angular gyrus should be included in the visual area; but it is now commonly believed that, in his experiments, he must have injured underlying optic fibers and that the angular gyrus has no visual function. However, v. Monakow (to use Campbell's words) "promulgates with some emphasis" a view "that there exists no part of the occipital cortex, and possibly none of the cortex of the angular gyrus, with which the macula lutea is unconnected." (Campbell's translation.)

"Clinical observations with subsequent autopsies cannot alone decide the question of the real extent of the human visual area, on account of peculiarities in its blood-supply on the one hand, and on account of the possibility of new tracts being brought into operation on the other. But the evidence concerning the last-mentioned point, along with that showing that the macula remains intact even after bilaterial destruction of the occipital lobes in the narrow sense, and finally the results of the study of secondary changes, necessarily suggest that the visual area occupies, in addition to the entire cortex of the individual occipital gyri (Cuneus, Lobus Lingualis, Gyrus Descendens, Occ. 1-Occ. 3), at least the hinder part of the gyrus angularis." (Gehirnpathologie, p. 468).

Inasmuch as our first case does show lesions of the hinder part of the angular gyrus, to say nothing of apparent shrinkage of the whole occipital pole, it is interesting to note that Campbell says that " a further point of importance is that a deep lesion in the left occipital lobe seems more likely to bring psychic defects in its train than one affecting the right."

Besides psychic blindness, much has been said concerning alexia (Kussmaul's *Wortblindheit,* Dejerine's *cécité verbale pure,* Wernicke's *subcortical alexia*), that is, an inability to comprehend written or printed language, despite the fact of perfect vision of the letters. To quote Campbell once more: " Clinically, many degrees and varieties of this affection may appear, but fortunately there is almost unanimous agreement concerning its pathological anatomy. In 10 or more cases which have been carefully examined (those of Monakow, Redlich, Verrey, etc.) the surface lesion has been confined to the region of the left angular gyrus and the second occipital convolution, and usually has spread sufficiently deep into the underlying white substance to include the fasciculus longitudinalis inferior, an important band of fibres, the connections of which we shall have to mention presently. And although, in some instances, other bands, *viz.,* the fasciculus longitudinalis superior, the occipito-thalamic radiations of Gratiolet, the forceps major, and in a few cases fibres pertaining to the splenium of the corpus callosum have been involved, the stress of the injury seems always to have fallen on the band first alluded to. Also it is becoming an established doctrine that destruction of the cortex in the region of the angular gyrus by itself, or of the fasciculus longitudinalis inferior by itself, is insufficient to produce alexia; the two must go together, and for the production of the clinical manifestation long and short systems of association fibres necessarily must be destroyed."

But, in our case, there is no evidence (so far as total brain sections stained by the Weigert myelin method show) of involvement or a destruction of these systems of association fibers.

A review of what Heilbronner has to say in his systematic summary of aphasia, apraxia, and agnosia in Lewandowski's *Handbuch*[7] adds nothing further to the above considerations. "The recognized frequency of reading-disorder with lesion of the (left) angular gyrus is explained by the interruption of communications between the occipital lobe (callosal connections with the *right* occipital lobe also considered) and the sensory speech area." Schuster seems to have shown (1909) that interruption of the *left* optic radiation as such does *not* produce alexia.

Another symptom attributed by many authors to angular gyrus lesion is *conjugate* deviation of the eyes (Landouzy and Grasset, Wernicke, Henschen). Others (Charcot and Pitres, Flechsig and von Monakow) deny this. Lewandowsky (1910) concludes that the parietal region, the inferior parietal lobule and the angular gyrus surely have something to do with conjugate deviation, although the angular gyrus localization has proved to have slight localizing value as compared with the middle frontal gyrus localization, proved by Oppenheim and Sahli in human cases (abscesses).[8]

Henschen reasserts (1910) that no portion of the optic paths and especially not the inferior longitudinal fasciculus sends fibers to the angular gyrus.[9] It would appear that our cases offer strong support to that contention.

II. Case A.

CLINICAL HISTORY.

History.—(B. S. H. 8065, Path. 1912.5). Born in Ireland; parents dead. She went to school until 17; then came to her sister in this country and began working, earning $10.00 a month as chambermaid in a hotel. For the next 10 years patient worked in three different places as chambermaid; before she married at 27, left hotel work and worked at the New England Conservatory of Music at $15.00 a month. It is stated by her sister that she was always well liked, capable, neat in dress, tidy in habits, read good books and was religious; that she was not given to extremes in anything and had no mannerisms.

Two years after she married she gave birth to a dead child. This was a great disappointment to both her husband and herself, since they desired children. Other uterine history is that she had irregular and painful and profuse periods. Never again pregnant. The hypothesis of syphilitic infection must be here entertained (no test by Wassermann method); or perhaps due to the uterine tumor that produced menstrual disorder. The autopsy showed (besides the arteriosclerosis practically all above the diaphragm) some duropial adhesions in the cervical region, possibly due to old syphilis.

As a housewife she was successful, planned well with her money, was neat, used no alcohol, could sew and was right-handed. She worried over her husband's drinking habits, which it is stated he contracted eight years after their marriage. But for this, sister thinks the marriage would have been a happy one.

Six weeks before coming to the hospital (43 years of age) she had been caring for her sister who had broken her ankle, and one day went to church with her and *suddenly fainted in church.* After that she complained often of her head and worried about small things. Sat looking over her small possessions in her trunk and would say: "My head is sick. Go and get the priest. What'll ever I do—What'll ever I do!" Four days before going to the hospital she thought her husband was going to leave her, since he asked for the house key (to go to mass). After this she was excited and restless, often saying: "Jesus, Mary and Joseph, what will I do—get a priest for me," thinking she was going to die. During this time she did nothing and was not violent until they came to take her to the hospital, and then she screamed and was subjected to restraint.

Physicians' Certificate.—Patient said: "Don't take my John from me. They are going to kill each other. They can't arrest me—I never did anything. They can't put me away. I am going to be left here all alone tonight. Save my soul. I am going forever. Is there a just God? We will all be murdered tonight. They are going to kill John down there. I will jump out of the window." She refused a glass of water, although previously having asked for a drink of water, claiming that it might be poison. Lately she has absolutely refused to take food or medicine. About two weeks ago she claimed to be choking, but on examination everything was normal. Now we cannot go near her, as she is suspicious of everybody and it is impossible even to examine her. She was continually striving to take her clothes off and made an attempt to go out of the window. Excitable and extremely restless. She has been continually making claims that some people have been persecuting her, and she has been constantly in fear of arrest.

Physical Examination.—Emaciated and weak, probably from refusal of food. Has a rapid pulse rate, sordes on teeth and has hemorrhoids. Is constipated, urine is high colored and concentrated, but no albumen.

Her expression is anxious and apprehensive. Thinks her husband and nephew are to be killed. Believes the food is poisoned. Tube fed. For two weeks after admission she was fed by tube and remained very much confused, excited, restless most of that time, wandering about the ward, disrobing, refusing to eat or talk and moaning and muttering incoherently. She became very much exhausted, and finally, after five days, she went to sleep and slept nine hours, after which she seemed stupid and drowsy. After that she took a fair amount of nourishment and slept pretty well, but lay in bed with clothes drawn up over her head and would not talk at all. It is thought that she was not as confused or as suspicious as when she came in.

In 10 days she began eating again, began to answer questions and looked much brighter. Then suddenly became confused and excited, rushed about the ward, frightening the other patients exceedingly, and was transferred to a more disturbed ward. Peered about and started at each sound as though influenced by hallucinations. Four days later a note states that she was still confused and resistive and had to be tube fed. When in her room made an outcry most of the time. Slept poorly.

The next month's notes state that she was apprehensive and distressed. Imagined she had no blood, no bowels, that her back had been stripped off and she was being hanged by the neck. Clenched her throat until it was red and almost raw from her finger nails. When food was placed in her room and the door shut she would eat a good part of it, but would not take any from the attendants. "Worrying herself to a shadow."

A week later than this, three months after admission, a few detached sentences, such as the following can be distinguished: "Can't you see my head can't go through that wall? Sure, I am somebody, I must be somebody. Oh, don't try to do that (as she is being lifted into her bed). Can't you see there is no bed. Don't hold on to me. You will all shut yourselves in here, too. Oh, sure, I am somebody. Oh, there is no bed, there is no room," etc. Appearance of great suffering and exhaustion.

Four month later, confused, apprehensive state most of the time. Mute. Resistive. More or less destructive. Physical examination poor.

A year later.—Still untidy and destructive; sometimes unexpectedly violent. At other times she would allow other patients to strike her and pull her hair without resistance. Lay about on a bench and dozed. When awake pulled at her hair and whined and cried out. No longer any appearance of apprehensiveness.

Two years later.—No change. Untidy and at times very noisy and destructive. Masturbated. Frenzies of excitement.

In April, 1910, five years after admission.—On a chronic, noisy, untidy ward. Had quiescent periods, when she simply lay about on a bench mute, and again, became much disturbed and cried, or rather roared most of the time, and wandered about in a staggering fashion, stamping her feet and seeking somebody to attack. Would fasten her hands in a patient's hair while she was sitting quietly, with a grasp like iron, in spite of her feeble appearance. Resistive about going to bed. Not taken out of doors except in summer, as she would lie down in the path and refuse to walk. At times she shouted and yelled the same phrases over and over in a high-pitched, monotonous voice for hours at a time. She resisted passive movements.

1911.—Noisy, shouting over and over incoherent sentences and stereotyped phrases. Still very untidy.

June, 1911.—Remained in bed in the same untidy, noisy state. Some days she would shout most of the day, using unintelligible phrases in a high-pitched, monotonous tone. Noisy at night. Small doses of sedatives.

December, 1911.—Six years after admission. Failing physically and, though she resisted physical examination, it was discovered that she has a marked dulness over posterior lobe of both lungs, especially the right, with moist rales. No expectoration.

January, 1912.—Gradually became weaker and died.

Diagnosis on admission, involution melancholia; diagnosis on discharge, dementia præcox.

POST MORTEM EXAMINATION.

Autopsy 13 hours post mortem (M. M. C.).

Cause of Death.—Pulmonary tuberculosis (cultures from).

Acute or Active Lesions.—Cystitis; sacral decubitus; hemorrhage into left ovary; hemorrhage into left renal pelvis and into cyst of left kidney; internal hemorrhagic pachymeningitis with partial organization.

Chronic Lesions.—Emaciation; aortic, coronary, internal mammary, splenic arteriosclerosis; slight hypertrophy of heart; slight atrophy of liver; slight atrophy of thenar muscles; fibromyoma of uterine fundus (6 cm. in diameter) with underlying chronic endometritis; right ovary cystic; chronic focal adhesive peritonitis (ectum, left Fallopian tube, broad ligament, and ovary involved in adhesions; no lesion inside rectum to correspond,) possibly healed syphilis; mammary atrophy.

Anomalies.—Right pupil smaller than left; asymmetry of sternum (lower end deflected to right); left clavicle depressed; nose deflected to left; rigor mortis absent in right arm, trunk, and neck (13 hours post mortem); contractures (?) of hands.

Nervous System.—In addition to slight internal hemorrhagic pachymeningitis, very slight calvarial adhesions, calvarial depressions to accommodate arachnoidal villi and middle meningeal arteries, comparatively thin temporal bones. There are lesions as follows:

Variations in Consistence of Encephalon.—Olives, occipital and frontal poles firmer than hippocampal gyri and cerebellum; the latter in turn firmer than the temporal cortex (this suggests topographical variations in degree of gliosis).

Slight Atrophy of Encephalon.—Brain weight 1145 gm. (Tigges' formula would yield 8 x 1 body length 150 cm. = 1200 gm.).

Cyst of softening of grey matter of left angular gyrus (of almond shape, major axis nearly at right angles to longitudinal fissure, external extremity slightly posterior, about 4 x 2 cm.) with overlying *sclerosis of pial vessels, notably veins. Slight retraction of left occipital tissues* (atrophy?). *Edema of Gasserian ganglia* (pituitary firm). *Adhesions of dura to pia in cervical region.* Slight basal arterisclerosis (no patches or yellowing).

Frontal sections through the two hemispheres in the plane of the focal lesion were stained by the Wiegert and Wiegert-Pal methods for myelin and by Mallory's anilin blue method for connective tissue. Smaller blocks from the injured, adjacent, and coördinate areas were stained by various methods to arrive at some notion of finer details.

Large brain sections through the middle of the lesion pass through planes posterior to Dejerine's frontal section No. 137 (Dejerine's fig. 266), and display relatively intact (beginning at a point superior to the lesion and skirting the left hemisphere) the *first occipital gyrus, superior parietal gyrus, cuneus, lingual gyrus, third occipital gyrus,* and *second occipital gyrus.* Indeed, small limiting portions of the angular gyrus are likewise intact, namely portions adjacent to the interparietal sulcus above and to the second occipital gyrus below. The plane of section also demonstrates some intact white matter apparently isolated from the underlying white matter: this appearance is explained by the shape of the lesion which is not quite round.

The process in and about the focal lesion seems entirely chronic or (with due respect to the neuroglia appearances) perhaps very slowly progressive. Of first importance is the histology of the cyst itself. The cyst is evidently due to an old necrosis of tissue supplied by a terminal branch of the parieto-temporal branch of the sylvian artery. The thrombotic arterial branch itself was cut at a point about 1 cm. posterior to the anterior border of the cyst of softening and can be seen making off from a previous blood-filled artery. The shrinkage of tissues due to the cyst has caused considerable buckling of the thrombosed artery, unless we are to suppose that the disease process has lengthened the artery. The thrombosis is of ancient date, as evidenced by the canalization of the connective tissue contents of the vessel. Mallory's anilin blue connective tissue stain shows a somewhat denser portion of small dimensions in the middle of the obliterated lumen: it is possible that this represents the remains of an old compressed strand of dissected-off endothelium. If this hypothesis is correct, it is possible that the original thrombosing process was like that found in various acute meningitic processes (pneumococcus and typhoid meningitis, for example). The sections show that the thrombosis extended for at least 1.5 cm. probably a greater distance (in the total-brain section block this vessel can be followed as a gray cord at the bottom of a sulcus stretching forward, outward, and slightly downward to communicate with the main parieto-temporal branch).

The cyst itself shows some collapsing of its numerous connective tissue-septa. Between these septa, which are rarely thicker than pulmonary alveolar walls, are collections of large phagocytic cells stuffed with degeneration products, but with nuclei (not as a rule pressed strongly to one side) rather quiescent-looking and globular. There are numerous small blood-filled vessels running through the connective tissue septa. There are next to no polynuclear leucocytes in the cyst spaces. There appear to be few lymphocytes and fewer plasma cells (if any) ; nor are there any accumulations of mononuclear cells about vessels at any point. There is considerable edema in places, and a large vein next to the plugged artery is filled with coagulated albumen.

The edges of the cystic spaces are remarkably definite and only slightly exhibit any suggestion of edema. The neuroglia cells are often supplied with cell-bodies of comparatively large size; but the nuclei even of such cells are not often vesicular. Still, it cannot be denied that the larger size of the neuroglia cell-bodies gives something the aspect of an active zone.

As one passes back from the cyst edge, there is evidence of some loss of tissue, since the small vessels lie in vacuoles containing considerable coagulated albumen, indicating ante mortem dilatation of these spaces. It seems clear that fairly numerous nerve fibers have been lost from the white matter surrounding the actual cyst. There are relatively too numerous capillaries in the tissue of both cortex and white matter surrounding the cystic spaces; and this excess of capillaries shades off gradually in less than 1 mm. into tissue supplied with a normal number of capillaries.

The pial edges of the cystic spaces are interesting from the slight undermining of the tissues which makes it perfectly clear that the subpial zone has great vitality as compared with the underlying layers. This is probably to a great extent due to a separate blood-supply by short meningeal vessels. But there are also signs that the neuroglia itself in the subpial zone is capable of strong reaction: some sections show that the inner face of the subpial layer, as it presents upon the cyst, is very markedly beset with neuroglia cells having expanded cell-bodies. In some places the subpial zone, as it overhangs the cystic space, has become a fifth to a fourth thicker than in adjacent regions where it overlies relatively normal nerve-tissue.

There are also ample opportunities for studying the differential vitality of the various cell-layers.

III. Case B.

J. G., No. 9599. Autopsy No. 1913-47.

Family History.—Patient's father was peculiar and at present (1910) has chronic melancholia. Mother is very nervous, and one sister is in a sanitarium for nervous breakdown.

Personal History.—Patient went to the Boston schools until he was 14. Went into insurance business at 18. He was very successful and remained with one company, A, for 18 years, when he was discharged because his commissions did not show a sufficient increase. This misfortune was a great shock to him and he worried excessively about it, but he at once secured a position with Company B, did well with them and remained there 18 months, when Company A offered to take him back and he accepted. He was given a very bad district in the slums of Boston, had trouble with his agents and all went wrong. He was admitted to the McLean Hospital February 1, 1910, with the above history, and the onset was given as 12 days before admission, when wife came home from the theatre and found him talking incoherently to himself, which condition has persisted. He has made several attempts to get away from the house and on the morning of admission to the hospital tried to jump from the third story window.

Physical Examination.—On admission to McLean was negative. All his answers to questions were given with more or less hesitation and with many incomplete sentences. He did not appear particularly depressed. There was no evidence of motor retardation. The immediate data of his experiences he took in but did not reason about them. A good deal of thinking disorder. Five days after admission, while sitting in chair, he suddenly slumped to the floor. Reflexes not disturbed. For 24 hours he lay in bed apparently dazed, keeping his gaze fixed very steadily on any new point of attraction. He would not eat and for four days he was tube fed, and at the end of the fourth day again gradually relapsed into the same dazed condition. Pulse 85, temperature in axilla 100. He would open his eyes after several commands, but had to be catheterized. In eight days he became a little more restless, temperature rose to 105, pulse 120, respirations 104. Two hours later, temperature dropped to 101, pulse 110, and the temperature became normal the same evening. Ten days after the initial attack, he suddenly made a rush for the window and resisted being put back to bed. Some days he had periods when he seemed amused; then would suddenly become tense and surly. Between the 15th and the date of admission to this hospital, the 23d of April, he has been much more inclined to fall into fixed attitudes, staring out of the window for 30 minutes at a time without perceptible change in position. Has acquired many habits, such as washing hands a certain way, standing in one place in the room, etc. Often complains that his head feels as if it were stuffed with mud. Often gives answers that are superficially correct, but does not want to take the trouble to put any real thought on anything he says. The striking things of his history are the *heredity,* the *efficiency* up to the age of 36, and a *sudden slump* which was recognized by his employers; followed in two years by marked physical change and increase in his mental incapacity. When he came to this hospital he was 38. His habits were said to be good. Commitment papers indicated that he was *suicidal;* and the patient said detectives were on his track, that he was going to carry a pistol in each pocket to protect himself, that a lodger across the street was a detective and on the watch for him, that there was a scheme in the insurance company to drop him out of sight. Patient was pugnacious and agitated, attempted to jump out third story window.

Other Facts.—Has failed mentally for some months; has lost his position with the insurance company. Has frequently spoken of revolvers and attempted to procure them. Has attacked his wife.

Physical Examination.—Shows a high narrow palate. Sluggish patellar reflex and *unsteady gait.* Coarse tremors of the tongue, disconnected speech—otherwise is negative. He talks constantly, twists his face into many peculiar expressions, but there is no speech defect. *Consciousness* is said to be greatly diminished. Evidently has *hallucinations* of sight and hearing and his attention is markedly blunted. His *memory* is poor and his *orientation* also. His train of thought shows a remarkable flight, of which the following is an example: "My head was driven right down between my shoulders. I was the littlest Jesus in the manger, started in eating straw. If I had been a horse, I'd have eaten my old black hoof. I have palpitation of the heart and liver at seven cents per pound. My father tried to shoot himself in Ayer Junction and Groton, Groton, Groton oil, capital G-R-O-T-O-N spells Groton, rotten whiskey is 15 cents a bottle in Springfield. Bancroft drank vinegar to quench his thirst. There's your knuckle, you bite it and its pinochle. Look at the Spanish-fly blister (pointing to a part of his body where there is no mark of any kind). Of course, suicides run in families, settled in Maine and moved up." In *May, 1910,* is reported as being disturbed, and destroyed clothing. In a highly excited condition, talking continually in a loud, rapid manner and going through many peculiar, purposeless movements. Treated with warm baths and became more quiet, which continued to the last of July, when he had a *temperature* of 103, which persisted for about a week and then became *normal.* In November of the same year, the note mentions that he is in a dull, stupid condition, cannot answer questions intelligently, and seems to be very much *demented.* Owing to his inactivity, his feet are swelling; he has become extremely untidy in his habits and does all sorts of repulsive things. For example—plugging his nose and ears with feces and rubbing feces over his body and hair. In *May, 1911,* he is somewhat untidy but appears brighter, and the next December he is noted as taking more interest in his surroundings. Has been employed in the industrial room and picked up considerably. Enjoyed going to the entertainments, but is said to be semi-catatonic. Later, leaves arms in position placed by examiner for a long time, and was at this time presented at staff meeting where four people thought him *dementia præcox,* though "manic" and general paresis were considered. *Two years* after the initial attack, he is reported as being stupid and answering questions in a whisper, sometimes intelligently, other times irrelevantly and was found to have a temperature of 99 degrees; and had an attack of *otitis media* in the right ear which persisted for 10 days with a temperature range of *98 to 104.* He was at that time tested by the Von Pirquet, which was *negative.* From then on there is a record of his temperature during the remainder of his stay in the hospital which is a continuous one, sometimes for weeks ranging decidedly above normal with upshoots to 102, and pulse between 80 and 118; and during the spring of 1912, the highest temperature not reaching above 102, the second Von Pirquet in March being negative, there appeared a small fluctuant tumor on the left back, between the sixth and tenth ribs near the spine, and tubercle bacilli were present. From then on the notes talk of discharges from "cold abscesses" in various parts of his body, and physical failure; incoherence in conversation.

August 15, 1913.—Edema of the legs and irregular pulse was noted, which increased with shifting dullness in flanks and a distended abdomen. Physical signs of general tuberculosis and edema.

Summary.—A man, in hospital 44 months and three days, died at the age of 41, after an illness which first appeared to be manic depressive; diagnosis later was dementia præcox with an onset at the age of 36. Commitment at the age of 38 with various attacks of unexplained temperature, and finally died after a long drawn out physical illness, with multiple discharging points of tuberculous abscesses.

The points in favor of general paresis were that at the age of 36 there was a period when business fell off, followed by a period of excitement and a slump, followed by demented condition. There was a tremor of tongue, slight unsteadiness of gait, and the *destructiveness* and repulsive *untidiness* mentioned. But there were no physical signs, and cell-count negative. Consistent with manic depressive phychosis, were suicidal tendencies, heredity, flight of ideas, a reason for worry (being discharged). For dementia præcox—he was discharged because of *inefficiency* at the age of 36—he was *incoherent* in his talk and *superficial* in thought. There were evidently imperative *impulses* when he would try to jump out of the window. There was a period of *mutism* and *refusal of food* and a *stupor* in which he had to be catheterized. There was the assumption of *fixed attitudes and mannerisms,* and lack of ability to think coherently. He thought that the *insurance company was against him,* and he was evidently *hallucinated* for sight and hearing and his speech was rapid and incoherent. His early dementia and inactivity and semi-catatonic reaction make a diagnosis of dementia præcox most probable.

The autopsy showed visceral and brain lesions of extraordinary interest. There was a general anasarca. There were areas of decubitus and there were linear surgical wounds, some still discharging, on the inner thigh, one at Poupart's ligament, one near the anterior superior spine of the ileum, one on the external side of left thigh, and one left posterior inner outcurve of the eighth rib, and there was a swelling 5 cm. in diameter over the sternum at the junction of the xiphoid process. There was also an ascites of a chyliform nature which is unusual.[1]

---

[1] Battey-Shaw Journal of Pathology and Bacteriology, volume 6—1900, page 339, notes that Bussey in 1889 first classified various reported cases of chyliform effusions of which there were 115 cases, and 54 cases of hydrothorax of a chyliform form-nature and two of chylus pericardium, and that these were usually due to rupture of or pressure upon the thoracic duct. Allbutt in the system of medicine, page 515, gives the mechanism of production of chyliform effusions as:

1. Failure of heart as a pump, falling of arterial pressure, rise of venous pressure near the heart, followed by fall in capillary pressure and absorption of fluid from the intestines and a diminished urine.

There was in this case no evidence of pressure on the thoracic duct by lymph nodes or growths of any sort, but the heart entered into the general tuberculous process by supporting an abscess which was continuous with the swelling over the xiphoid process that infiltrated the eight intercostal muscles on each side internally, through the articulation of the eighth rib on the left to the anterior mediastinal tissues and to the pericardium and epicardium over the apex. Whether this incapacitating of the heart at the left apex and the surrounding pericarditis was *the* cause of the general anasarca is, of course, an hypothesis, but since all the tissues were flooded with fluid, it is not impossible to suspect that reversed venous pressure and gravity would permit and encourage the transudation of the chyle through the receptaculum chyli.

Tuberculous processes were also in the lungs, in the kidneys and in the left psoas muscle, and there was in the brain a focal area of firmness in the anterior portion of the left angular gyrus, which upon examination proved to be a fibroid tubercle, without caseation. The remainder of the brain was unusually plump and normal in appearance.

We have in this case then an unusual combination of visceral tuberculosis, showing a rare variety of *ascites, a psychosis appearing at the age of 36, and an irritative process* limited to the grey matter in one area of the brain cortex in the post-Rolandic region.

H. P. M. 18. Age 41. Head, Trunk and Cord: M. M. Canavan.

Body of a fairly well-built and poorly nourished white male, 172 cm. in length. *Skin* waxy white, slightly discolored in patches in the neck region. No lymph nodes palpable but skin is full to *saturation* of fluid in all extremities, neck, arms, hands, scrotum and feet, and the *abdomen* protrudes and nearly obliterates the umbilicus.

Pupils.—Right, 0.7 cm., left, 0.8 cm. Rigor mortis present except in arms; *contractures* of legs to point of 45°; *body* in right lateral decubitus. *Decubitus* (superficial) over sacrum 4 cm. in length. There are several *surgical wounds* (linear), 2-3 cm. in length, some of which have healed, some still discharging; they are located as follows: two on right *inner thigh* in upper third internal to sartorious muscle; one at *Poupart's* ligament 4 cm. internal to left anterior superior spine of the ileum, one on external side *left thigh* 10 cm. below trochanter major, and one on *left chest* posterior near the outcurve of the eighth rib. There is a *swelling* 5 cm. in diameter over the sternum at the junction of the xiphoid process. Penis not examined. Tibiæ smooth.

Ventral Section.—Panniculus nil—skin and muscle very thin over thorax and abdomen—the latter particularly, and the stomach and coils of white

---

2. Hydraemic plethora rise of main pressure throughout vascular system.

3. Stage of dropsy caused by high capillary pressure and increased permeability due to malnutrition.

4. Hydraemic plethora leads to ever increasing over-filling of the heart cavities, and to failure of the heart.

intestine well out of the incision, as does quantities of opaque thin fluid, (several thousand cc.). Spleen free and large—liver floats away from right side and from diaphragm. Appendix 6 cm. in length. Peritoneum looks clear and also the intestines except for a short space of the small gut where the visceral peritoneum is grey and parboiled in appearance and shows no miliary tubercles. Mesenteric lymph nodes slightly enlarged; fat in mesentery infiltrated by fluid. Diaphragm not measured. Prolapse of rectum slight.

Thorax.—Making the cuts through the skin the swelling before mentioned is undermined and at once a quantity of yellow-green pus exudes. Stained specimen shows detritic remains of cells and tubercle bacilli. This abscess has ramifications of an unusual extent, for connected with this local well of pus are other pockets infiltrating the eighth intercostal muscles on both sides and extending laterally to a line dropped from the nipple on the left to the mid-axillary line on the right, and internally through the articulation of the eighth rib on the left to the anterior mediastural tissues and to the pericardium and epicardium over the apex. *Lymph nodes* in the area outlined are enlarged and all tissues are edematous.

The pleuric cavities are filled with fluid, the lungs floating in it, and the left lung is attached to the chest wall at the apex and to the posterior wall at the base; the right lung adherent at base and diaphragmatic surface. Peribronchial lymph nodes enlarged.

Heart.—Weight (with pericardium and much edematous tissue surrounding), 410 gm. It is impossible to separate the peri- from the epicardium except by dissection, and the apex of this spreading puriform abscess is discovered to be in the epicardium over the left ventricle near the base of the heart, and extends also laterally so that cross-sections of the muscle reveal areas of cheesy material following the coronary left (descending branch) and also in the edematous epicardium. At the point where the pus is the most abundant (near branching of the left coronary), the heart muscle otherwise firm, is semi-disintegrated and softened and of a lighter color. Measurements:

T. V.	11.0 cm.	P. V.	7.5 cm.	L. V.	1.0 cm.
M. V.	10.0 cm.	A. V.	8.0 cm.	R. V.	0.4 cm.

Endocardium slightly grey. Right auricle very small and occupied by a thick cruor clot. The tricuspid valve is also adherent at its otherwise free edges. Note—(Condition of heart perhaps responsible for chylous ascites?).

Lungs.—Combined weight, 380 gm. Lungs are almost collapsed, left shows miliary dots on pleuric surface and a slight tuberculous process at apex (no cavitation) with an enlarged node clinging to apex wall. Cut section shows points of pus in some bronchi with reacting peribronchial infiltration. The right lung shows congestion but no tubercles and a cheesy spot on the lowest lobe posterior, which when separated from the thorax, leaves an infiltrated chest wall near the spinal column. The left upper lobe leaves the same appearance to the parietal pleura. On the right eighth rib posterior near the vertebra is a ragged tear in the parietal pleura and an oozing pus point size of a walnut.

Organs of Neck.—Not removed.

Abdomen.—Spleen. Weight, 250 gm.. Capsule not thickened; organ very plump. No malpighian bodies; trabeculæ indistinct, pulp rich in amount but not soft, no apparent edema.

Adrenals.—Plump and yellow; centrally softened.

Kidneys.—300 gm. Perirenal fat, stringy and edematous. The fibrous capsule not thickened. Cortex, which measures 0.6 cm., swells slightly over the capsule. Marked differentiation exists between medulla and cortex, the first very brilliantly red, the second most brilliantly yellow of an ochre shade. Examining this more closely the yellow has indefinite-edged, tiny, white linear specks very close together throughout the cortex. Blood-vessels in the cortex brilliantly outlined by vivid red color. Calices and pelves negative.

Liver.—880 gm. The entire surface has a contracted appearance, though the capsule is not thickened, and on section shows not more than a usual amount of resistance. No increase of interstitial tissue made out—liver quite bloody. Gall bladder pale and wall thick; contains no stones.

Pancreas.—Not examined.

Gastro-Intestinal Tract.—Stomach very large and distended with gas; rugæ present, mucous wall fairly normal in appearance, pylorus free. No change in mucous membrane at any point of intestine; the section of that point which showed change on serous coat gave no corresponding change inside the gut.

Genito-Urinary Tract.—Bladder large and free, prostrate not enlarged. Testes not examined.

Special Examination.—Pushing a probe through the areas mentioned under general description on right inner thigh the free end of the probe ascends on the inner side of the sartorious muscle and is visible under Poupart's ligament. The right psoas muscle is thin and flabby and soft, and on cutting is seen to be greenish, brown and friable, and the fibers easily separate longitudinally, leaving individual fibers free with large spaces between, and the lumbar nerves are isolated and exposed; the neurolemnia of the nerves looks brownish (note—looks like the residual of a drained abscess). With the organs of the trunk removed, the peritoneum made as dry as may be, though every mesh of tissue has been as edematous as possible, the anterior portion of the spinal column is inspected for twists, curves or caries; none are found. The inner head of the left psoas shows pus in its substance and probably accounts for the pointing of an abscess in left groin. The lymph nodes along the spinal column are enlarged, the sympathetic chain appears smaller in caliber than usual, the retroperitoneal tissues immediately above and below the crura of the diaphragm look ragged, infiltrated and edematous.

Head.—Hair brown, mixed with grey. Scalp not remarkable. Calvarium measures—frontal 0.6 cm., temporal 0.4 cm., occipital 0.3 cm. Dura not thickened nor adherent, pia slightly translucent but at no point opaque.

Some excess of cerebrospinal fluid. Brain softened except for occipital tips and one small focus 1 cm. in the most anterior portion of the left angular gyrus. Basal vessels clear: pituitary small. Ganglions and middle ears negative. Brain weight, 1450 gm.

Cord.—Another attempt to locate if possible any caries of the vertebrae from the posterior aspect, and no curves nor dislocations nor softenings seen, though each vertebra was inspected. Some slight rotation of right fifth and sixth rib on the right. Back muscles very edematous. Transverse processes narrow.

Anatomical Diagnosis (1913.47).—Poorly nourished; general anasarca; unequal pupils; contractures; decubitus, sacral; surgical wounds, legs and back; abscess over sternum (tuberculosis); chylous ascites; mesenteric mediastinal and bronchial lymphnoditis; prolapse of rectum; hydrothorax; chronic obliterative pleuritis; tuberculous pericarditis; pulmonary tuberculosis; intercostal tuberculous abscess; tuberculosis of kidneys (?); beginning cirrhosis of liver; destruction right psoas muscle; pus in left psoas muscle; cerebral malacia; focal *sclerosis* left angular gyrus; brain weight, 1450 gm.

Miscroscopic Examination.—As in the previous case, the miscroscopic examination has been for the present confined to local conditions about the tubercle, except that no total brain sections have as yet been prepared. The tubercle bacillus was demonstrated in section. There was a moderate number of giant cells in the wall of the tubercle both on the side facing the pia mater and on the internal aspect. A bacillus was occasionally demonstrated in a giant cell. No other organisms appear to be found in the lesion.

It would, of course, be particularly important to know the age of the tubercle. So far as indications go, the tubercle may have been a very old one. The quasi-capsule of the tubercle was from 1 to 2 mm. thick and appears to be somewhat thicker on the pial side than elsewhere. In the outer portion of the fibrous capsule there are a moderate number of vessels whose sheaths are infiltrated with lymphocytes and a moderate number of plasma cells. No endothelial lesions were found. Outside the fibrous capsule there are some small vascular twigs with a slight infiltrate in their walls; but within far less than a millimeter from the capsule, infiltrated vessels were no longer in evidence. Just outside the fibrous capsule the nerve cells of all layers appear abnormal, suggesting pigmentation and a kind of spongy transformation in which the nuclei are not infrequently absent. These dead or dying nerve cells are not particularly prone to show satellite cells. Beyond the range of the dead or dying nerve cells, however, the nerve cells are very generally supplied with a moderate excess of satellite cells rarely more than three to five in number. These satellite cells do not especially occur at the bases of the nerve cells but preserve a somewhat irreguar relation thereto.

Throughout the zone lying outside the fibrous capsule are moderately numerous neuroglia cells having expanded homogeneous-looking cell-bodies in which by appropriate stains ependymal dots can be demonstrated. These expanded neuroglia cells have as a rule but one nucleus and rarely more than two. The zone of the "active" or expanded neuroglia cells passes beyond the zone of dead or dying nerve cells, and beyond the surrounding zone of nerve cells showing satellitosis, and these expanded neuroglia cells are found in otherwise normal-looking nerve tissue.

It is a question how these cells may be interpreted as to the part they play in the lesion. They do not appear more numerous or of a different appearance in the concentric zones above mentioned. They must very probably correspond to the destruction or partial destruction of nerve elements or portions of nerve elements.

A speculation could easily run to the effect that as the necrosis in the tubercle advanced, the surrounding zones themselves gradually advanced, with the neuroglia cells always in the lead. As the lesion advances, it may be supposed that the first thing which happens is the death of neurones or parts of neurones outside the zone of satellitosis in that region which we have described as looking normal but containing expanded neuroglia cells. As the destruction of elements in this part becomes more pronounced, the satellitosis enters. As death finally overtakes the cells, they lose their satellites, and hence the inner zone just adjacent to the capsule is developed, in which dead cells are seen but satellite cells are not prominent.

Meantime, whether from their superior vitality or from the fact that they can get on under less favorable circumstances, the neuroglia cells remain in comparative abundance throughout these zones and in approximately equal parts in all zones.

Accordingly, the tubercle, whatever its age, seems to be manifesting an unusually even extension as indicated both by the regularity and homogeneity of the capsular and pericapsular zones, but also by the evenly diminishing exudate about the vessels in these successive zones.

As to the reaction of the cell layers to the tubercle, no special study of these reactions has been made for the present communication. In the superficial orienting study no indications of a differential reaction were to be found. From the greater thickness of the capsule on the pial side and adjacent portions of the lesion, it might be inferred (though with no great assurance) that the region of greatest activity in the lesion was in this neighborhood and that accordingly the outer cell layers would be more particularly affected at first than the inner layers.

IV. Summary.

In the nature of things no proof can yet be offered of the genetic relationship of lesions of the left angular gyrus and catatonia. It has been claimed by one of the writers that the catatonia of dementia præcox is more a property of parietal (post-Rolandic) lesions than of anterior lesions; and the dementia præcox lesions are not coarse lacunar lesions. Little or no evidence has been hitherto available as to the relation of *coarse* destructive brain lesions to catatoniform syndromes in diseases other than dementia præcox. It is sometimes stated that deep *left-sided* occipital lobe lesions are more often attended by mental symptoms than identical lesions of the right side. And, of course, the classical relation of the peculiar symptom *alexia* to the *left* angular gyrus (to be sure it is now alleged that the underlying fasciculus longitudinalis inferior must be simultaneously affected to produce alexia) may be urged as pointing *leftwards* to a region of greater psychic interest.

However this may be, the writers present two cases, in themselves interesting, which suggested and obtained the diagnosis dementia præcox, although the cyst of softening in one and the solitary tubercle in the other may well be regarded as withdrawing the cases altogether from the dementia præcox group and settling them in a group of nondescript, coarsely organic, and destructive brain lesion cases.

The experience of these two cases suggests further work to secure psychopathic correlates in other cases (a study of the Massachusetts material of angular gyrus material is far advanced towards completion), and to learn from a large group of so-called "late catatonias" whether there are any which really belong in the true dementia præcox group, as we are coming to conceive it.

Of the two cases, A was female, B male. A's symptoms began out of a clear sky with a fainting spell at 43. B's symptoms began with business inefficiency at 36. A died at 50, having shown no sign of arteriosclerosis after the initial faint. B died at 41, having developed severe generalized tuberculosis, but no focal nerve signs from his solitary tubercle. The diagnosis in each case was perhaps not entirely clear, especially viewed in post mortem light; but each received the diagnosis dementia præcox. There is a suspicion (but only a suspicion) that A may have been syphilitic.

Both patients showed at one time or other *hallucinations of hearing* (B also of sight), *disorder of consciousness, confusion, incoherence, mutism, refusal of food* (tube-feeding), *impulsivity, delusions of persecution, apprehensiveness* (B also suicidal), *fixed attitudes, mannerisms, somatic delusions, destructiveness, violence, stuporous states* (catatonic).

The somatic delusions were partly cephalic, and may perhaps be taken more as illusions:[10] A., "*head sick,* "*back stripped off and* *being hanged by neck," "my head can't go through that wall";* B., *"head feels as if stuffed with mud," "my head was driven right down between my shoulders."*

As to *alexia,* neither case could be tested.

As to *conjugate or other eye movements,* A showed nothing which was independent of other paraboulic acts, but B's eyes would sometimes be fixated for long periods upon a succession of different points in space (half an hour at a time).

As to *automatism* and *cerea flexibilitas,* A was at times (but rarely) passive to any form of attack, B showed automatism and possibly *cerea.*

As to *schizophrenia,* A ran to the autism of delusions of negation (*"Sure I am somebody, I must be somebody * * * Can't you see there is no bed * * * Oh! there is no bed, there is no room."*), B to grotesque shifting of ideas with some maniacal plays on words woven in (*"There's your knuckle, you bite it and it's pinochle. Look at the Spanish-fly blister"*).

We may now compare the cases with respect to disorders of senses and intellect on the one hand and emotions and the will on the other.

The senses in both cases appear to have been normal.

Aside from periods of *confusion* and *incoherence, delusions* of *persecution* and *somatic delusions,* the patients showed little or no intellectual disorder. To be sure, both, as stated above, showed at one time or another, *disorder of consciousness* and *stuporous states* of a catatonic appearance, and it is possible that the *hallucinations of hearing* in both cases may be explained by some sensory or intellectual disorder of an unknown nature.

It does not appear that Case A showed a special intellectual disorder before the onset of her disease; it may be thought that Case B had experienced some intellectual deterioration as evidenced by his loss of business capacity.

Concerning emotions, both patients showed *impulsivity* which was regarded, however, as not of emotional origin. Both patients were at times *apprehensive* (B also suicidal) and both appeared to have reacted as it were normally to their hallucinations. *Refusal of food* in both cases may be regarded as possibly of emotional origin, although the general interpretation of the cases seemed to indicate that this symptom was of a catatonic nature.

Both patients had at times to be *tube fed.*

As to the general emotional state, it does not appear that either patient was ever euphoric, although B had periods of apparent amusement, in the midst of which he would suddenly become tense and surly (A also had sudden attacks of excitement, but it does not appear that they were related to a particular emotional state).

As to the will, the conduct of both patients was variable. Neither was successfully gotten to work, although each was for a good part of the time not in bed.

Both patients were *untidy* from time to time.

Both patients showed a number of anti-environmental symptoms such as *destructiveness, violence* and often dangerous *impulsivity, mutism* and the like.

Little can be said regarding the sex life in either case (masturbation in Case A, occasional remarks of a sexual content in Case B).

The bodily state of patient B fluctuated from time to time in response to the tuberculosis. Patient A showed no especial physical disorder except emaciation; this was also patient B's condition.

There appears to have been no clinical evidence pointing to the moderate atrophy of the liver in Case A, or to an early cirrhosis in Case B.

Both patients suffered from pulmonary tuberculosis, and Case B showed a variety of tuberculous lesions in many organs, as well as the chylous ascites considered in detail above.

The total duration of symptoms was in Case A, seven years, in case B, five years.

It would naturally be very important to know the age of the cyst of softening in A and of the tubercle in Case B. The appearance of both lesions is consistent with their being very old, at least as old as were the symptoms; nevertheless, it may be that both lesions were either older or younger than would be indicated by the age at which symptoms developed.

The argument is fairly strong in Case A that the lesion was probably correlated with the only *fainting spell* which the patient appears ever to have shown. It will be remembered that in Case A there were no other arteriosclerotic symptoms or any other suspicion of cerebral arteriosclerosis.

With respect to Case B, microscopical analysis seems to show that the lesion may have been in some sense slowly progressive, that is to say, that the necrotic center of the tubercle may have grown slowly larger with an even and progressive expansion of the capsule, parts of which may have been destroyed in the globar spread of the process. Interesting details as to the special features of the successive zones of the lesion from within outward are given above.

If one were inclined to press analogies between these cases and the histological features of ordinary dementia præcox, one might be interested in the observation that the subpial zones in both cases, being origins of greater vitality (perhaps owing to their vascular supply), are the regions of greatest activity. Case A, for example, showed an intense neuroglia reaction in the overhanging subpial zone, and Case B also showed that the outer cell layers would be far more likely to be affected early than would be the inner layers.

This question is not one which can be resolved with such material as is afforded by these cases, nor do we know enough about the differential reactions of the suprastellate and infrastellate zones to make discussion at this time profitable. It may be noted, however, that in the later work of the Munich school, attention has been drawn to the suprastellate layers rather than to the infrastellate layers as a site of lesions in dementia præcox.[6] To be sure, Alzheimer had, so far back as 1897, noted gliosis of the lower layers of the cortex in catatonia;[11] but it appears that later work has tended to reverse this conclusion, or, at any rate, to show that the suprastellate zone is more markedly affected in most cases; at all events, this appears to be the situation in these two cases. What we now need, accordingly, is differential study of the angular gyri in a considerable series of dementia præcox cases, together with a sufficient control series.

Whether the lesions had a direct mechanical effect upon the tissues to give rise to the symptoms in these cases must remain obscure. That the gliosis with its contractile tendencies was more marked in the suprastellate region than in the infrastellate region, is merely an interesting fact that may be more a matter of coincidence than a fact of genetic value.

In work on epilepsy it was formerly claimed that very possibly the contraction of the proliferated neuroglia tissue might evoke or liberate convulsions, whereupon the simplification of neighboring tissues, structurally proved to exist before, would favor the propagation of the epileptic discharge.[12]

Much, of course, must depend upon the site of the lesions and the original function of the cells and tissue in question. Convulsions were not produced in these cases, nor is there any especial evidence in the literature that convulsions are produced by lesions in either angular gyrus.

We leave the question unanswered accordingly, from the data of these two analogous cases, that catatonia or catatoniform symptoms may occasionally be mechanical in origin.

V. Conclusions.

The writers present two cases of chronic lesion of the left angular gyrus which received the clinical diagnosis of dementia præcox. One case showed a cyst of softening and the other a solitary tubercle. It appears that both lesions may well be of suitable age to correspond with the date of onset of the symptoms. Although not in all respects typical, the diagnosis of dementia Præcox seems to have been accepted by the Boston State Hospital officers in charge of the cases. Decidedly atypical is the age of onset of the first case, at 41; the second case had its onset at 36.

The writers are especially interested in the fact that the isolated lesions in these cases are in the parietal region, a region which has been stated in previous work from this laboratory to be correlated with catatonic symptoms. Plates are presented showing the site of the lesions.

REFERENCES.

1. Campbell: Histological Studies on the Localization of Cerebral Function. Cambridge, 1905, pp. 133, 134, 137, 139, 153, 162, 163, 173, 203, 204, 257.
2. Southard: A Study of the Dementia Præcox Group in the Light of Certain Cases Showing Anomalies or Scleroses in Particular Brain-Regions. American Journal of Insanity, Vol. 67, July, 1910.
3. Southard: On the Topographical Distribution of Cortex Lesions and Anomalies in Dementia Præcox, with some Account of their Functional Significance. American Journal of Insanity, Vol. LXXI, Nos. 2 and 3, October, 1914, and January, 1915.

4. Kleist: Untersuchungen zur Kenntnis der psychomotorischen Bewegungstörungen bei Geisteskranken, 1908.
5. Kraepelin's Psychiatrie, ein Lehrbuch für Studierende und Aerzte, III Bd., 1913.
6. Kraepelin's Psychiatrie, ein Lehrbuch für Studierende und Aerzte, II Bd., 1910.
7. Heilbronner: Die aphasischen, apraktischen, und agnostichen Störungen. Lewandowsky, Handbuch der Neurologie, I Bd., Allgm. Neurol. S. 982, 1910.
8. Lewandowsky: Die zentralen Bewegungstörungen, *ibid.* S. 733.
9. Henschen: Die zentralen Sehstörungen, *ibid.* S. 891.
10. Southard: On the Somatic Sources of Somatic Delusions. Journal of Abnormal Psychology, December, 1912-January, 1913.
11. Alzheimer: Beiträge zur pathologischen Anatomie der Hirnrinde und zur anatomischen Grundlage einiger Psychosen. Monatschr. f. Psychiat. u. Neurol., 2, 1897.
12. Southard: On the Mechanism of Gliosis in Acquired Epilepsy. American Journal of Insanity, April, 1908.

DESCRIPTION OF FIGURES.

Fig 1, Case A.

Total brain sections of the two hemispheres stained by the Weigert-Pal myelin method.

Female, aged 50.

Cyst of softening of left angular gyrus of arteriosclerotic origin due to thrombosis of vessels (demonstrated in special sections).

There is, internal to the cortex lesion, an area of partial destruction of tissue, which is in part due to artefact, but may in part represent a mild degeneration of myelinated fibers. Traces of a similar process are to be seen internal to the calcarine fissure.

Careful external photography and dissection have so far not revealed other arteriosclerotic lesions or lesions of any other nature in the nervous system of this case.

Fig. 2, Case B.

Male, aged 41, with onset of symptoms at 36.

Photograph of the posterior aspect of the surface of section of the brain cut frontally in the region of the angular gyrus. (The photograph was made of the tissue anterior to the plane of section.)

The tubercle is a trifle over 1 cm. in a plane parallel with the convolutional surface, and is about ¾ cm. deep when measured from the pial surface to the inferior edge of the capsule.

No other lesions have been found elsewhere in the brain.

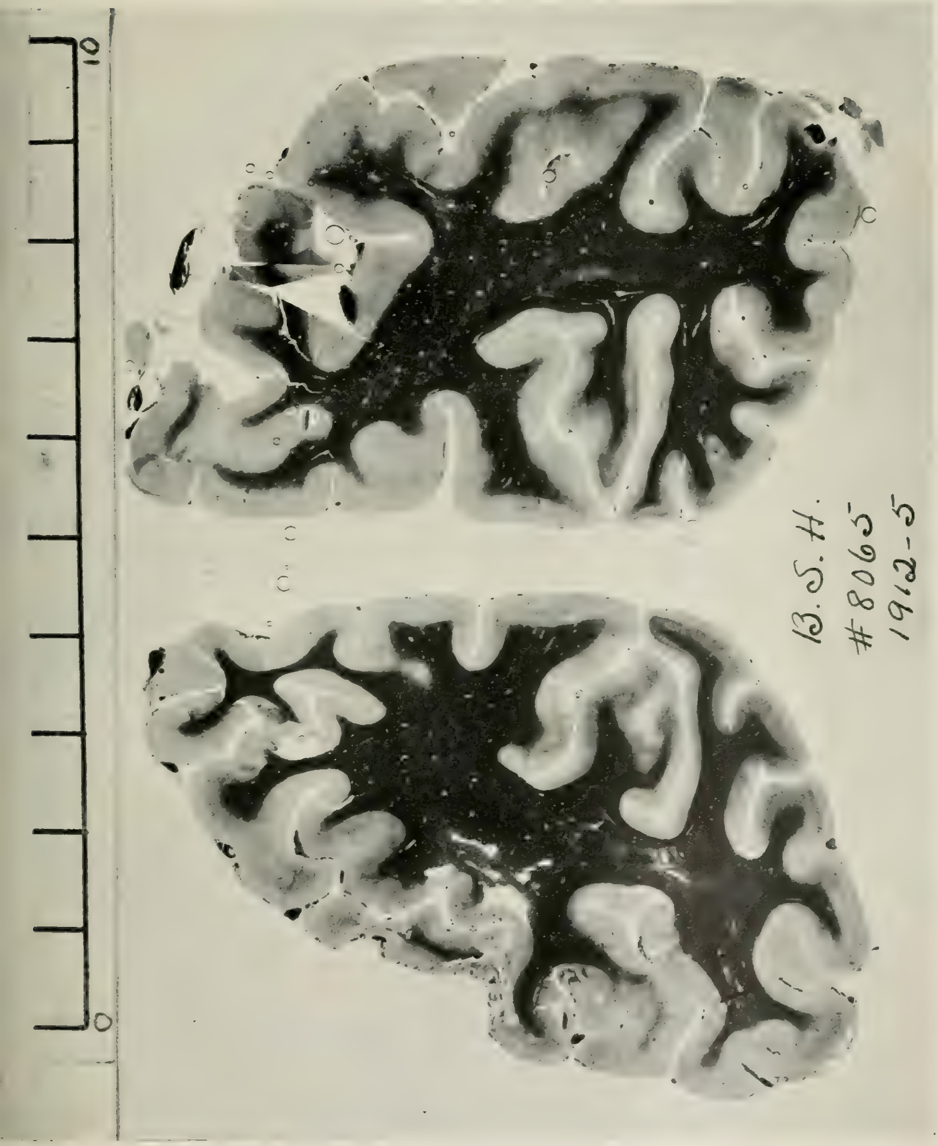


Fig. 1, Case A.

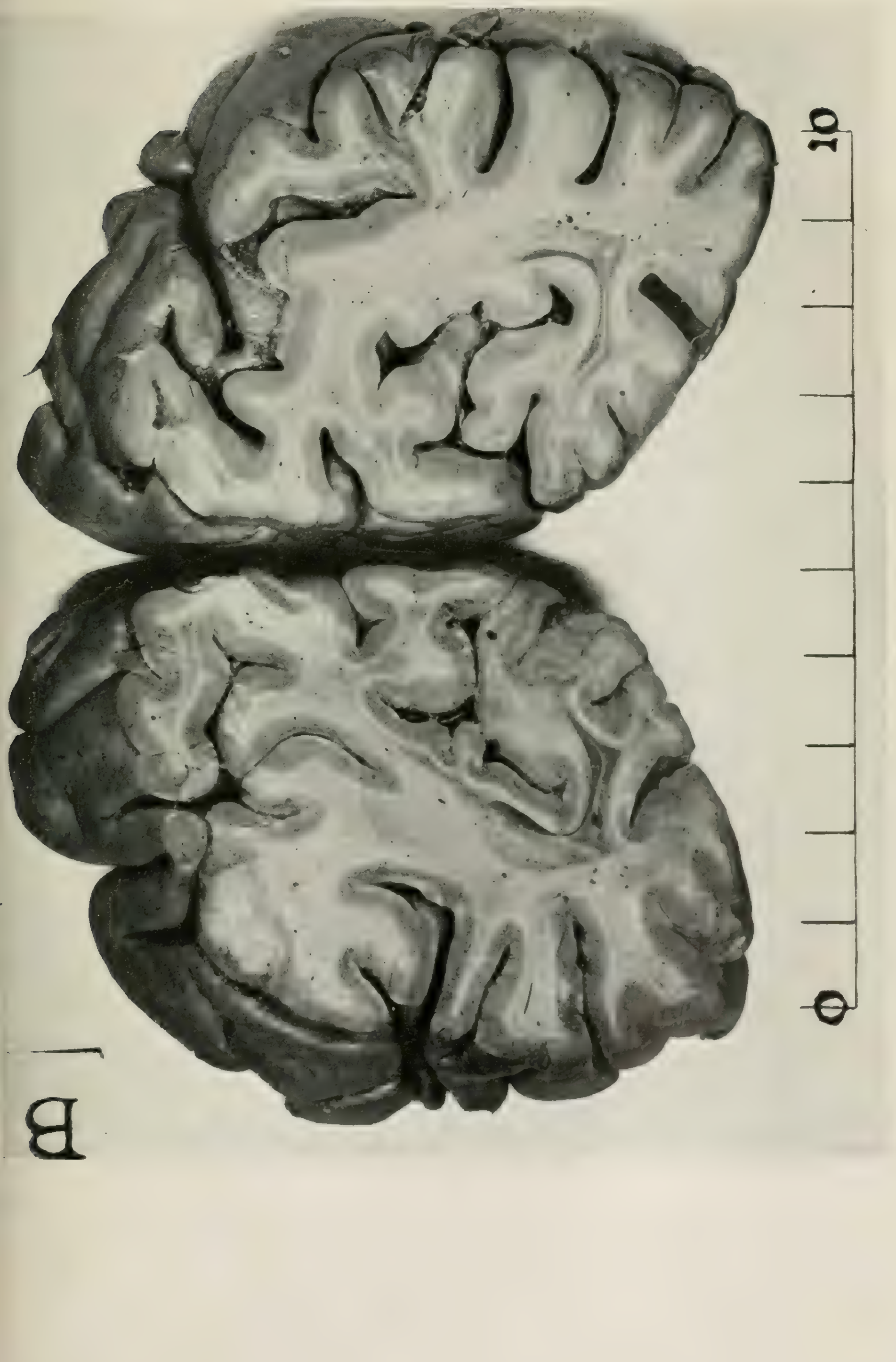


Fig. 2, Case B.

Notes and Comment.

THE SEVENTY-SECOND ANNUAL MEETING OF THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.—The next meeting of the Association, its seventy-second, will be held at the Hotel Grunewald, New Orleans, La., April 4 to 7, 1916.

The secretary, Dr. Henry C. Eyman, of Massillon, Ohio, has issued a preliminary programme giving a partial list of papers which will be presented:

"A Study of Widal's Phenomenon Following Prophylactic Administration of Typhoid Vaccine." Dr. J. Clement Clark, Sykesville, Md.
"Report of Progress in Brain Syphilis Investigations." Drs. Solomon, Southard and Canavan, Boston, Mass.
"The Anti-Narcotic Law." Dr. Geo. A. Zeller, Peoria, Ill.
"Psychoses Associated with Diabetes Mellitus." Dr. W. W. Richardson, Mercer, Pa.
"Waverley Anatomical Researches in Feeble-Mindedness." Drs. W. E. Fernald, E. E. Southard and A. E. Taft, Boston, Mass.
"Mental Deficiency in 2000 Cases Considered Especially from the Standpoint of Sex and Etiological Incidents." Dr. Alfred Gordon, Philadelphia, Pa.
"Asthenic Irritative Insanity." Dr. Michael Campbell, Bearden, Tenn.
"Treatment of Mental Cases in General Hospitals." Dr. Tom A. Williams, Washington, D. C.
"Farming and Gardening as a Diversional Occupation for the Insane." Dr. John N. Thomas, Pineville, La.
"Interpretation of Artistic Work of the Insane." Dr. C. B. Burr, Flint, Mich.
"Psychology of Hysteria." Dr. Wm. G. Somerville, Memphis, Tenn.
"Is Insanity Increasing? Why?" Dr. H. P. Sights, Hopkinsville, Ky.
"Etiological Factors in Dementia Præcox." Dr. Eugene D. Bondurant, Mobile, Ala.
"Phylogenetic Elements in the Psychosis of the Negro." Dr. John E. Lind, Washington, D. C.
"Recidivation in Insanity with Considerations on Classification." Dr. Geo. Villeneuve, Montreal, Quebec.
"Psycho-Analytic Tendencies." Dr. Wm. A. White, Washington, D. C.
"A Psychosis Presenting Schizophrenic and Freudian Mechanisms with Schematic Clearness." Dr. C. C. Wholey, Pittsburgh, Pa.

"Report on Cases of Paresis, Treated by the Swift-Ellis Method." Drs. Allen D. Finlayson and H. W. Mitchell, Warren, Pa.

"Dementia Præcox from a Biologic Viewpoint." Dr. F. W. Langdon, Cincinnati, Ohio.

"Psychoses Associated with Sydenham's Chorea." Dr. Arthur S. Hamilton, Minneapolis, Minn.

"Manic-Depressive Psychosis in the Negro." Dr. E. M. Green, Milledgeville, Ga.

"Inebriety from a Medical Viewpoint." Dr. Irwin H. Neff, Pondville, Mass.

"The Occurrence and Significance of Certain Gyral Anomalies in Brains of the Insane." Dr. Lawson G. Lowrey, Danvers, Mass.

"Korsakow's Syndrome in Pregnancy." Dr. C. Eugene Riggs, St. Paul, Minn.

"The Dementia Præcox and Manic-Depressive Psychoses: their Differential Symptomatology." Dr. H. H. Drysdale, M. D., Cleveland, Ohio.

Papers have also been promised by the following gentlemen, the titles of which have not been announced: Dr. C. A. Porteous, Montreal, Can.; Dr. Geo. M. Kline, Danvers, Mass.; Dr. Carlos MacDonald, New York, N. Y.; Dr. Forest C. Tyson, Augusta, Me., and Dr. Edward Ryan, Kingston, Can.

The annual address will be delivered by Professor Pierce Butler, dean of the Graduate Department, and professor of English in Tulane University, New Orleans.

New Orleans is a city of about 400,000 inhabitants and possesses many features of great and unique interest. It has been spoken of as the most un-American of all American cities. During the month in which the meeting will be held the weather is spring-like and delightful and we feel confident that those who attend the meeting will find, at the journey's end, much of local interest to engage their attention.

It is possible that arrangements will be made for excursions from certain central points in the East, Middle West, West and Southwest whereby congenial parties can arrange to travel to the meeting together. Members living along the Northern Atlantic Seaboard will find a choice of travel by land or sea. The secretary will keep members informed of any special arrangements for travel to the meeting which may be made.

We feel that a meeting and a meeting place which each present unusual attractive features should call out a large attendance.

CELEBRATION OF THE TWENTIETH ANNIVERSARY OF THE FOUNDING OF THE DANVERS, MASS., STATE HOSPITAL LABORATORY ON ITS MODERN BASIS.—A conference was held at the Danvers State Hospital at Hathorne, Mass., on November 19, 1915, to celebrate the placing of the hospital laboratory on a modern basis, with a full time pathologist, in 1895, or 20 years ago.

The conference was made a tribute to Dr. William Leonard Worcester, the first pathologist of the hospital. This act of the past and present members of the hospital staff was a graceful and well-deserved tribute to the memory of one who inaugurated at Danvers and carried on with great success those pathological studies which have since, as they did in his time, reflected much credit upon the institution.

Dr. Worcester was well known to many of the readers of the JOURNAL from personal contact, but probably to a larger number through his contributions to its pages. These were not all in the form of articles relating to psychiatry, but were, many of them, reviews of books which exhibited a discriminating criticism which made his reviews of marked value.

The greater part of Dr. Worcester's medical career, 1873-1901, was spent in institutions for the insane, first at Kalamazoo, Mich. (1878-1889), then at Little Rock, Ark. (1889-1895), and from 1895 to the time of his death in June, 1901, at Danvers. His death, the result of an infection of a finger of his right hand while doing pathological work, added his name to the long roll of medical martyrs to science.

The conference was under the auspices of the Board of Trustees of the hospital, Hon. Samuel Cole, secretary of the board, presiding. In the morning session following an inspection of the hospital and laboratory there was a symposium upon the following topics:

A. The Place of the State Hospital and its Laboratory in the Development of Psychiatry. Those who spoke upon this topic were: James J. Putnam, M. D., pathologist at Danvers 1879-1885; Henry R. Stedman, M. D., assistant superintendent Danvers 1879-1884; Sanger Brown, M. D., assistant physician 1881-1882.

B. On the Encouragement of Scientific Investigation: Its Value to the Hospital and the State System in General. The speakers upon this topic were: Charles W. Page, M. D., medical superintendent Danvers 1888-1898, 1903-1910; Arthur H. Harrington, M. D., assistant physician, 1885-1894, medical superintendent 1898-1903; Harry W. Mitchell, M. D., assistant superintendent 1899-1907, superintendent 1910-1912, and George M. Kline, the present medical superintendent. The discussion which followed the formal remarks was led by Drs. A. M. Barrett, E. E. Southard, H. M. Adler, E. D. Bond, H. A. Cotton and L. G. Lowrey.

For the afternoon session a series of 41 papers appeared on the programme, nearly all by past or present members of the medical staff of the hospital But 16 of these papers, however, were announced for reading, the remaining 25 were presented only by title. We congratulate the management of the hospital upon being able to bring together such an array of papers from men trained in its wards and laboratories and upon the thoughtfulness that made the occasion a tribute to the memory of one whose example and work has been a stimulus to all who followed him.

Book Reviews.

The Work of Our Hands: A Study of Occupations for Invalids. By Herbert J. Hall, M. D., and Mertice M. C. Buck. (*New York: Moffat, Yard & Company, 1915.*)

The object of this book is quite different from that of the one on Occupation Therapy reviewed in this JOURNAL in October. The work then reviewed had for its object instruction in various games and handicrafts for their diversional and therapeutic value while the book under consideration looks upon occupation more from an economic standpoint.

Both viewpoints are bound to present themselves to the hospital physician and it depends largely upon his make-up and still more largely upon the class of patients under his charge, which of these two appears to him the most important.

If he deals with acute cases, who stay under care but a short time and whose recovery and restoration to their previous environment is the matter of paramount interest, he will look upon occupation as a therapeutic measure; one which will be of greater or less value; greater if followed up systematically, less if used in a careless and indifferent manner.

If on the contrary he has charge of a large institution, for example, a state hospital, where many patients remain permanently, the economic value of occupation will impress itself upon him. The same will be true of the physician who has to do with patients who return from his care to their homes in some measure handicapped as regards earning their daily support by reason of physical or mental impairment. Any suggestion which will enable these patients to go out equipped with skill in some craft which is adapted to their condition and which will in some degree contribute to their maintenance will be welcomed—so also as to patients who must remain permanently under care. If they can be led to contribute to their own support, and to the relief of the taxpayers who must provide for them, by the work of their hands while in the hospital, a distinct economic gain has been made. At the same time, if the forms of occupation are carefully thought out and supervised, the patient occupied will be found to be in a much better condition than if left in idleness.

Too often, as Dr. Hall points out, patients in large institutions are put at routine drudgery of house work or out-of-door work on the farm which has neither a mental stimulus nor can it be viewed as supplying in any degree the place of some form of recreation.

Dr. Hall appears to accept without much question the statements of "splendid financial returns" from the work of patients in state hospitals. We believe that the work of patients can be made of value financially, and at the same time physically and mentally to the patient. It is, however, in the benefit to the patient, the prevention of a hopeless stage of dementia and in the greater ease, and therefore greater economy of caring for such patients, which results from systematic and well-supervised occupation, that the real economics are shown.

If the value of the labor really expended, as measured by results, by patients on a state hospital farm were to be compared with the paid labor and the value of his own supervision and work which an energetic farmer would expend in obtaining the same results, the amount to be credited to each patient for the value of work done would be quite small. The sum which could be paid to the worker or his family, if based upon the real productive value of his work, would, save in exceptional instances, be still less; and if as seems proper and is suggested by Dr. Hall, the saving should be returned to the state to diminish the burden of the patients' support, the balance remaining would be infinitesimal.

As regards patients who have an incurable physical handicap Dr. Hall's teaching is, "make him as useful as possible," as opposed to the usual teaching, "make him comfortable," "because in making him useful you are quite likely to take away hopelessness and despair; and because you may even relieve some of the most distressing symptoms."

Dr. Hall's chapter on the trained nurse and the work cure recognizes the necessity of a special training for the nurse in occupational therapy, but is too brief to be of distinct value as indicating the kind of training which the nurse should have. We are not inclined to agree with him in his warning against teaching a nurse a few amusing occupations "which may be well enough for convalescent children," unless he means to warn against the belief that these will be enough to equip the nurse for helping patients in occupation either as a diversion or a means of support. We have found many patients whose first interest in occupation was aroused by string-work, cutting paper, or a few simple games, who could not have attempted, or even been attracted by more complicated tasks.

We are thoroughly in sympathy with any effort which will help solve the problem of occupation and at least partial support and an increased feeling of independence and therefore, self-satisfaction, for the handicapped. The problem looms large across the ocean where already shops and schools have been established for physical wrecks which have been sent back from the firing lines. Dr. Hall has pointed out some forms of work adapted to the crippled in limb, to those with various nervous defects, and to persons whose hearts or lungs will not permit strenuous or confining work. The steady growth of new problems which confronts the busy hospital physician—many of them problems connected with the social-service department of the hospital, induces one to hesitate before suggesting that he must busy himself in finding occupation suitable for his discharged cases who find themselves unable to follow their former occupation—and must establish schools and shops where these patients may be trained in work suitable to their physical or mental state. Could such schools and shops be established, the return of many patients to the hospital could be prevented and the discharge of many others could be expedited. Each hospital physician must decide for himself where his most urgent duty lies. Each hospital board must study its budget from still another angle.

Part second is written by Miss Buck and is the result of about 10 years of personal experience.

In the opening chapter Miss Buck says: "It may be definitely stated that the work has been sufficiently hopeful to be convincing of the great possibilities of handicrafts in the future, not only as a means of reclaiming to productive industry many at present incapacitated through illness or lack of proper training, but as a therapeutic agent of great value."

Miss Buck points out that among the "chronics" who frequent hospital clinics in large cities, and who often end prematurely in the almshouse, there are many who could do a little, if only the way were pointed out and that along lines which would not bring them in competition with others struggling to earn a livelihood.

She warns the teacher of crafts who attempts to work with the handicapped not to be so intent on fine work as to lose sight of the human interests involved. She must not only teach her pupil how to work but to think and how to work effectively when he is unaccustomed to work at all. The teacher must be able to arouse interest when the patient does not want to be interested and to know the difference between laziness and indifference and fatigue.

To meet these requirements the teacher, who is also a trained nurse with adequate experience at the bed-side, is the ideal person. If in addition the teacher's work is supervised by a physician who is interested in occupation therapy and who sees also the opportunities for aiding handicapped patients to a means of at least partial self-support, the teacher and the pupils are both working under ideal conditions.

Occupation therapy indeed like other forces of treatment should not be employed without medical direction and supervision.

Miss Buck's section of the book is the larger one and goes much more into detail than does that written by Dr. Hall, where too often the reader is left without sufficient data upon which to build an opinion or from which to draw a conclusion.

One is almost forced to the conclusion that Miss Buck has had insufficient or badly directed experience in the therapeutic application of work when we find her putting "what is called diversional occupation" into the "palliative" class as distinguished from the "remedial" and that her experience has been with a class of patients upon whom she has not seen fit to try the effect of simple diversional occupation, some forms of which she almost contemptuously dismisses as merely fit for children.

We feel confident that with certain patients the first steps in remedial occupation must be in the use of simple diversional occupation; to arouse interest in many cases, because best adapted to physical and mental states in others. The author's attitude in this respect possibly explains her difficulties in working with hysterical patients. Miss Buck divides her section into chapters, treating of occupation in various diseases and various forms of mental disturbance. We regard such a diversion as wholly artificial and arbitrary—the occupation must be adapted to the individual rather than the individual plus the disease which he has.

It is well for the teacher to know the limitations marked by the patients physicial or mental condition, beyond these the form of the malady is of no importance to the teacher. It is manifest that in some stages of locomotor ataxia patients must be given work adapted to their ability to get about and to their ability to coordinate arm and hand movements. It is also evident that occupation and muscular re-education or training may go hand in hand, but these relate to the patient's condition and not to the name of his malady. Similar work may be just the thing for like states not due to locomotor ataxia.

In the chapters on "mental diseases" the same criticism applies. In writing of dementia præcox nothing is said about re-education and the value of work and training in staying mental deterioration though the reader can see that Miss Buck apparently has this in mind in certain cases. It would be interesting to know exactly what the cases are, who are "more 'queer' than actually insane," who fail from year to year in efficiency. The description sounds much like cases of dementia—but possibly Miss Buck like many friends of patients has her own idea of what constitutes insanity.

The book is an interesting one, perhaps its interest is increased by reason of the things which are left out or only suggested and which make the reader attempt to supply or work out for himself the details he hoped to find. Its main object appears to be to awaken interest in providing occupation for the handicapped—a subject which in many localities is attracting attention and in this respect it fulfils its mission—as a book of instruction to workers among the handicapped either in or out of hospitals we fear it will be found disappointing.

The Answer or The World as Joy: An Essay on Philosophy. By W. J. Chidley. (*Sydney, N. S. W.: Sydney and Smith, 1915.*)

Francis Anderson of the University of Sydney, in the introduction to this book which he says the author asked him to write says: "Mr. Chidley proposes to write a History of Philosophy and at the same time to expound his own theory of human life as a union, or rather harmony of natural and spiritual functions. It is a difficult task to combine two methods in one work, the method of the impartial scientific expositor and the method of the propagandist or preacher of a new gospel."

The author presents after his exposition of philosophical systems a thesis which he has called a Discovery—based upon what he believes to be biological and physiological facts.

The introduction does not vouch for the truth of the "Discovery," but somewhat naively states that "the greater part of this work, however, may be read with profit quite apart from any agreement or disagreement with the thesis set forth in the concluding chapters."

This is as far as the reviewer cares to go. The first chapters contain a hasty and imperfect review of various philosophical systems. It cannot be dignified by the title of history. The second part the answer has to do with an alleged discovery as to the relation of the sexes which does not deserve the time or space necessary to a critical analysis, which does not indeed lend itself to an analysis. The author appears to have been at odds with the postal authorities in Sydney for circulating an alleged immoral book. We know nothing of the real circumstances of the case nor do we endorse the *obiter dictum* of the Sydney magistrate at Mr. Chidley's trial who said that no philosophical book would be read by the public if it did not contain indecencies, but as to the work before us that which is not a synopsis of the work of others, is not worth reading and would not attract attention, save from the morbidly curious.

Index of Four Hundred and Fifty-eight Post-Mortems of the Insane. Number 1187-1638. State Hospital for the Insane, Norristown, Pa. By Charles J. Swalm, M. D., Pathologist, and Abraham L. Mann, M. D., Assistant Pathologist. With an Introduction by Allen J. Smith, A. M., M. D., etc., Consulting Pathologist of the Hospital. (*Norristown, Pa.: Published by Authority of the Board of Trustees, 1915.*)

This book presents a record in brief terms of the post-mortem findings of 458 cases taken in order from number 1181, died Oct. 7, 1907, to number 1638, died Dec. 10, 1914.

The diagnosis in each case is given, as for example, taking the first six cases recorded, paresis, melancholia acute, melancholia chronic, paresis, dementia terminal, dementia organic. No clinical history is given, no symptoms narrated, nothing which would connect the plain recital of post-mortem findings with bed-side observations.

It will at once be seen we believe that the record is of practically no value. Of what value as throwing any light upon the possible pathology of dementia præcox is the following: 1589 dementia præcox white, female, 74; atrophy of the skull; chronic external pachymeningitis; chronic leptomeningitis; hydrops meningens; cerebral cortical atrophy; dilatation of the lateral cerebral ventricles; hypoplasia of the right cerebrum, involving most of the occipital lobe; followed by a recital of the findings in the thorax and abdomen? And yet this is a fair sample of all the remaining 457 records.

As an index of post-mortem findings taken in connection with the very elaborate and complete general index, the record is of interest, but as a contribution to the pathology of mental disorders it appears to be of no practical value.

It is to be regretted that the time spent in making these records had not been devoted to a complete study of a few cases taken in connection with the clinical case records.

VOL. LXXII. APRIL, 1916. No. 4

AMERICAN
JOURNAL OF INSANITY

PATHOLOGICAL FINDINGS IN THE SYMPATHETIC NERVOUS SYSTEM IN THE PSYCHOSES.[1]

BY A. MYERSON, M. D.,
Clinical Director and Pathologist, Taunton State Hospital.

TAUNTON STATE HOSPITAL PAPER, 1916, No. 1.

In contrast with the immense importance ascribed to the sympathetic nervous system and the unremitting study it has received on the part of physiologists, neurologists and clinicians, is the attention that it has received on the part of pathologists. Except for the work done in Addison's disease, the literature contains but a very few scattered pathological studies of the subject. Compared with what has been done by the neuropathologists on the central nervous system, that done on the sympathetic sinks into complete and astonishing insignificance.

1. SOME OF THE MORE IMPORTANT LITERATURE.

One of the most quoted as well as one of the earliest pathological studies was that by Hale White (16). Working entirely on material from non-insane patients, White found that the semilunar and the superior cervical ganglia quite regularly presented changes of marked character. Pigmentation that went on to the destruction or disintegration of the cell, disappearance of the nucleus, absence of the nerve processes, appearance of leucocytes without regard to pathological processes, increased connective tissue—these he records as occurring in most cases after early adult life. They were not present in ganglia of children. As a result of his pathological studies and of a study of the sympathetic ganglia in animals, White came to the following conclusions: First, the changes above described, occurring in the semilunar and the superior cervical sympathetic ganglia, are *not pathological,* but represent a *normal change* occurring in the life history of the ganglia. When such changes occur in the thoracic ganglia they are of some pathological importance. When they occur in the Gasserian ganglion (used as a control), in the cardiac and lenticular ganglia, they are of great pathological importance, representing then a disease process. Second, studies in animals convinced him that the semilunar ganglion, as well as the superior cervical, is a *recessive organ, one which tends to disappear as one goes higher in the animal scale, and without function in the adult human.* It has function in the child and, therefore, may be compared, on the ground of life history, with the thymus. On the other hand, the lenticular, cardiac and Gasserian ganglia are of decided importance because they functionate in the adult, and changes occurring in them are of pathological importance. Somewhere between these two series of ganglia are the thoracic ganglia of the sympathetic, which in part are recessive and in part functional.

---

[1] Read before the Boston Society of Psychiatry and Neurology, December 23, 1915.

It is important to note that this view is absolutely opposed to the belief that the semilunar ganglion is a *very active nervous organ* having the closest relationship with the condition of the abdominal and pelvic viscera, entertained by the later physiologists, neurologists and clinicians. (Langley, Eppinger and Hess (4); Higier (5).) Moreover, the biological studies of White are distinctly contradicted by the researches of His, Junior, and especially by the work of Kuntz (6). According to the latter, the semilunar ganglion is a *late* organ, one that is phylogenetically younger than the central nervous system, younger than the peripheral ganglia of which it is an outgrowth. The higher up in the animal scale, the more this prevertebral system comes into play. Consequently, it is by no means a recessive organ, but, on the other hand, is an *arriving* organ.

It is pertinent to state here that some facts which are the result of personal research contradicts White's views. For example, in the semilunar sympathetic in old people one finds cells with very good cell processes (Fig. 1, Plate V). Moreover, acute cell changes of a type occurring only in functioning cells occur in the sympathetic ganglia of old people (Fig. 2, Plate III, cells A and B).

Vas (15), somewhat later, believed that the excessive pigmentation found in the sympathetic was not entirely pathological and in a large part represents the normal evolution of the nerve cell.

With both of the above opinions, that is, those of White and of Vas, Lugaro (11) is in disagreement. Conceding that pigmentation is a process of old age, its *excess* as found in cachexia and in other conditions indicates *excessive senility, true disordered function.* For Lugaro, the frequent finding of excessive pigmentation, cell destruction, nuclear changes and connective tissue increase in old age can be correlated with the physical disturbances of that time of life. He concludes that the superior cervical ganglion and the semilunar are *earliest* of all the sympathetic ganglia *to become aged.* It will thus be seen that of the two conclusions possible concerning these changes, which are, first, that it is a normal evolution, and, second, that it is an early senility, White has taken the one view and Lugaro the other.

Orth (14) finds increased pigment, atrophy of cells and a disappearance of the nucleus in cachexia and extreme old age.

Most of the other writers on the sympathetic, as studied from a pathologists's point of view, have paid their attention to the cells found in the intestine and heart. Thus Blaschko (1), working in enteritis, finds acute cell changes in Auerbach's plexus and suggests that diarrhœa accompanying enteritis is a nervous phenomenon. The researches of Leupold (9) substantiate a similar conclusion. Cotton and Southard (3) find axonal reaction changes in a case of mental disease in which this reaction was found widely spread throughout the central nervous system, thus making up the pathological entity called central neuritis by Adolf Meyer. Of great importance are the degenerative changes recorded by Lissauer (10) as occurring in the heart ganglionic cells after acute and chronic alcohol and chloroform poisoning, as well as through disease.

The views of Y. Manquelian (12) are of decided interest. On the ground that he has demonstrated sympathetic nervous cells in the aorta and in many of the organs, he believes that the interpretation of bodily symptoms without reckoning the peripheral nervous system is vitiated by the omission. Glandular activities and disease processes are affected by and affect the nerve cells scattered throughout the body.

2. Personal Studies.

The material examined was in part obtained from 50 consecutive autopsies performed at the Taunton State Hospital during the past year. In the main, only the semilunar ganglia were studied, usually from formalin, zenker, and alcohol fixed material. The stains mostly used were eosin-methylene blue, Van Gieson, toluidin blue and cresyl violette, Bielschowsky and scharlach R. In addition to the above material, 40 sets of slides from as many cases autopsied at Worcester State Hospital during 1903 and 1904 were restained in the eosin-methylene blue and examined. Furthermore, certain animal material was sectioned, and results will be here recorded.

It is not my intention to describe every variety of change found. Certain outstanding and peculiar variations will be considered, not in relation to mental syndromes, for no such relationship can at present be even considered, but in wider relationships.

1. *Brief Description of the Normal Semilunar Ganglion Cell.*—It is a multipolar cells with a large, slightly eccentric nucleus of ordinary structure. The Nissl granules are not so distinct as, for example, in the Gasserion ganglion or in the motor cells of the cord, but they are readily demonstrable and are not peculiar. The cell is smaller than the Gasserian ganglion cell, but is like it and all peripheral cells in that it lies in a capsule lined by endothelial cells. These cells have the usual satellite functions and line each process of the cell as well as its body.

Cells having a double nucleus are comparatively common in the semilunar ganglion. The meaning of such cells is debatable in other parts of the nervous system, but in the semilunar ganglion it is undoubtedly normal, and in certain species of animals (the rabbit, the guinea-pig) it is extremely common. In man, such cells differ in no other fundamentals from their neighbors. Both in man and the animals the double nucleated cells are not found in the intestine or other peripheral organs.

A peculiar phenomenon which is here mentioned, perhaps irrelevantly, is the occurrence, though very uncommonly, of cells having double nucleoli. These double nucleoli have almost, though not quite, the appearance of mitosis. Double nucleoli are fairly common in the sympathetic ganglion cells of certain animals; for example, rabbit, guinea-pig and, by personal observation, in the intestine of a bull (Fig. 1, Plate IV, cell B). Whether it is pathological in man, I cannot say. It was found only in a few cells of a young epileptic and in a senile dementia case, a man, aged 95.

2. *Axonal Reaction.*—So far as I know, this has not previously been described in the cells of the semilunar ganglion. Here, as elsewhere, there is a displacement of the nucleus to the periphery, a swelling of the body with central chromatolysis, and in some cases the nucleus is extruded. The meaning of this phenomenon is well established and relates to an acute disorder, which may or may not arise through injury or irritation of the axon. This phenomenon occurring in isolated cells in very many cases was particularly prominent in five (Fig. 2, Plate III).

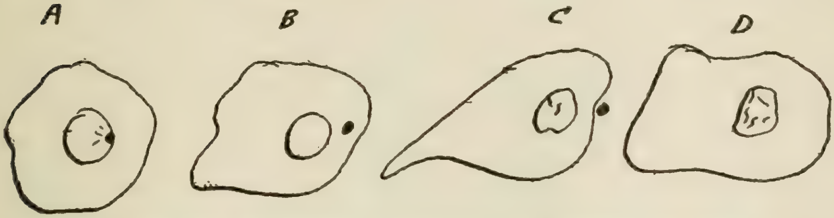


Fig. 1.—Showing emigration of nucleolus. *A*—Eccentric nucleolus. *B*—Further stage. *C*—Nucleolus, entirely out. *D*—Cell without nucleolus.

(a) An acute exhaustion psychosis in a woman of 50 without acute infection and terminating in death owing to failure of compensation of the heart, of which the mitral valve was chronically diseased.

(b) Three cases of enteritis ending in death. In these cases, occurring twice in senile dementia and once in general paresis, the axonal reaction was very prominent in cells scattered throughout the ganglia.

(c) One case of senile dementia, more properly a psychosis due to failure of compensation and cerebral arteriosclerosis in a male, aged 68, who died of pulmonary tuberculosis; tubercular glands of peritoneum—no tuberculosis of sympathetic. Very decided axonal reaction throughout the ganglia together with much more chronic changes later described.

3. *Emigration of the Nucleolus.*—This rare change, probably acute in character, is here described, I believe, for the first time. As the name indicates, the nucleolus leaves the cell to disappear into the interstitial tissues. Eccentricity of the nucleolus is not uncommon. The meaning of this phenomena is unknown. It was prominent in a senile dementia case, man of 95 years of age (Fig. 1).

4. *Neurathrepsia.*—This term is here used to cover a very large number of changes of a chronic type which lead to the destruction of the cell. It was first used by Levaditti (7, 8), and is in contrast with the term *neuronphagia,* which, properly used, means the "eating up" of the nerve cells by phagocyte and satellite cells as seen in anterior poliomyelitis and rabies. In neurathrepsia, owing to defective metabolism, there is progressive change in the nerve cells with or without corresponding increase in the satellite cells. As Van Gehuchten pointed out years ago, if degenerative changes are slow, satellite cells do not multiply. If the changes are rapid they do multiply.

(a) Pigmentation (Type No. 1). The usual lipochrome is common in the sympathetic. It appears early, frequently starts around the nucleus and in the sympathetic is very often excessive to the point where no cell structure can be made out and where masses of pigment only can be seen. In such cells, by Bielschowsky's neurofibril method, the cell processes are diffcult to make out and the fibrils cannot be distinguished. In cachexia, and especially (as it seems to me) where the intestinal atrophy is marked, the largest part of the cells present have no nuclei, and are represented by irregular groups of pigment without cellular structure (Fig. 2, Plate V).

(Type No. 2.) Oxyphilic granules, that is, granules which take the acid stains, such as the eosin-methylene blue, are prominent in the process here described. These granules, called oxyneutrophylic by Marinesco, are frequently found together with the lipochrome and independently of it. The granules are very often very fine and scattered, and on the other hand are seen as large granules which are quite compactly arranged. These granules are much more common in the prevertebral than in the central nervous system, and occur more frequently in the semilunar than in the Gasserian ganglion. They represent undoubtedly pathological changes of a chronic kind. It is certain, however, that they also occur in more acute conditions. In a young bull suffering from tubercular enteritis certain cells of Meissner's plexus in the intestines show this change in decided manner (Fig. 1, Plate IV).

5. *Nuclear Changes.*—These are exceedingly common in this condition. Viewed from the technical standpoint they consist in a gradually increasing affinity for acid dyes, so that while the normal nucleus is unstained in eosin-methylene blue preparations, the abnormal in the final stage may be of a deep red. Morphologically, the nucleus presents first an irregular border and then becomes more and more shrunken until in extreme cases it has a half-moon shape. Filamentous change of the nucleoplasm is part of the process. Finally, it must again be mentioned that in marked pigmented neurothrepsia the nucleus disappears from the cell structure. This, however, is not so common as most of the writers seem to think, and it is possible that they may have been misled by the fact that the irregular arrangement of the sympathetic ganglion cells lends itself to deceptive planes of section in which no nuclei can be found.

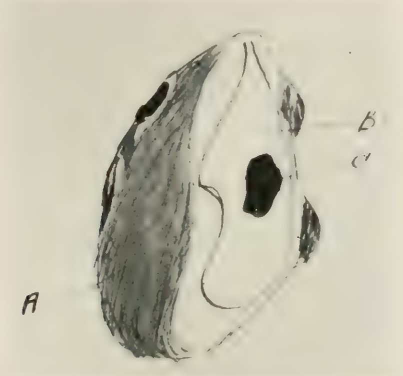


Fig. 2. Showing shrinking of nerve cell and intra-capsular homogeneous red-staining mass (epileptic dementia). *A*—Intracapsular mass. *B*—Shrunken nerve cell. *C*—Nucleus, presenting hyperchromatia.

6. *Capsular changes.*—In the old, where the degenerative changes progress to a marked extent, one of the most apparent

phenomena is the irregular relation between the capsular nuclei and the nerve cells (Fig. 2, Plate V). In the young, this arrangement is very regular. In the old, the capsular nuclei are increased, swollen, and overlie the nerve cell. Where the cell is completely destroyed there is usually a definite increase of capsular cells. This multiplication of satellite cells is not so marked, in my opinion, as the corresponding neurogliar increase under similar circumstances in the central nervous system.

In certain old cases, especially marked in a case of epileptic dementia in a man 75 years of age, the nerve cells are decidedly irregular and shrunken in appearance. Under favorable circumstances this is found to be the result of a homogeneous red staining mass which appears in the capsule and, gradually encroaching on the cell, causes an atrophy by pressure (Fig. 2). I have not found this change in the Gasserian ganglion.

7. The interstitial connective tissue (Fig. 1, Plate III) shows an increase, as might be expected. One very curious feature of the semilunar ganglion is the almost complete absence of true, inflammatory reaction processes. Plasma cells, even in general paresis, are practically never seen and the entire lymphocytic and leucocytic series are conspicuously absent. This in despite of the fact that the ganglia are *surrounded by* and *interspersed with* very small but very active lymph glands of a curious kind in which all manner of cells are found. The paucity of inflammatory reaction is in decided contrast with the condition of two related structures. First, the central nervous system and the Gasserian ganglion, in which such changes are very common, and, second, the adrenal gland, in which lymphocytes, plasma cells, etc., are more often found, perhaps, than in any other non-lymphatic structure of the body.

Scattered through the ganglion, however, are occasional eosinophylic cells of the type found in inflammations. These cells are of two kinds; one with coarse granules (Fig. 2, Plate IV), the other with a nucleus like a plasma cell and a finely granular body. This last type is similar to cells found in the aforementioned lymph glands.

A very suggestive finding is to be recorded in the eosinophilic cells found in an intestine of a young bull killed because of tubercular enteritis. In this case there were many eosinophilic cells, as is normal for this species of animal, and, besides, many plasmas.

etc., because of the tubercular inflammatory process. *The curious thing was that the eosinophilic cells seemed actively phagocytic for the injured nerve cells, and selectively so* (Fig. 1, Plate IV). Since the eosinophiles have never before been seen to be phagocytes, this observation is important.

To summarize the above findings. First, the semilunar ganglion is apparently often acutely injured in general infections and in enteritis, as is shown by the presence of the axonal reaction and other changes above described. Second, the semilunar ganglion is the seat of degenerative processes to an extent probably greater than cord, brain or Gasserian ganglion. These degenerative changes are here designated under the general term neurothrepsia (Levaditti). It is probable that these changes represent an early and marked senility, and in this I am in accord with Lugaro. Third, there is a decided absence of marked reactive changes (lymphocytes, plasma cells, etc.), such as are prominent in the central nervous system, Gasserian ganglion, and the related organ or adrenal. Even in general paresis these are absent. Fourth, there is a curious, though not prominent, increase of eosinophilic connective tissue cells which, in the case of the bovine tubercular enteritis here cited, seemed to have a phagocytic attraction for injured nerve cells.

It is to be emphasized that the above findings apply, in my experience, only to the psychoses.

Conclusions.—Two prominent conclusions stand out as worthy of emphasis. First, the semilunar and other sympathetic ganglia and the autonomic ganglia merit the close attention of pathologists. The part the vascular and glandular system under their control plays in all the great vital processes as well as in the creation and modification of the emotions, indicates that a more comprehensive and systematic study may throw light on the problems of old age as well as on the psychoses. Regarding the latter, it may be stated that quantitatively greater changes in the cases of insane people may well have a value equivalent to qualitative changes, since in many of the psychoses the evolution of the disease is from temperament to insanity. Second, the interpretation of morbid phenomena needs to take into account the presence of nerve cells in the organs, such as the aorta, the heart, the intestines, stomach, genitalia, etc. Symptoms may well arise because of injury to these peripheral cells either as an antecedent, or as a consequent, of the disease process. We have, as recent experiments show, drugs that have a peculiar and selective power on the nerve cells of the autonomic and sympathetic systems. These should be experimentally as well as therapeutically used in conditions where the symptoms are even in part vasomotor and glandular.

BIBLIOGRAPHY.

1. Blaschko: Virch. Arch., 1883, 94, 136.
2. Carpenter and Pinil: Jour. Comp. Neurology, 1914, 24, 269.
3. Cotton and Southard: Am. Jour. Insanity, 1909, 65, 633.
4. Eppinger and Hess: Jour. Nervous and Mental Dis. Monographs, 1915.
5. Higier: Ergebniss der Neurol. U. Psy., 1912, Bd. 11, H. I. 11.
6. Kuntz: Jour. Comp. Neurology, 1911, 21, 220.
7. Levaditti: Compt. Rendus de la Soc. de Brol., 1914, 96, 474.
8. Levaditti: Jour. Piquot-Ann de l'Inst. Pasteur, 1914, 28, 509.
9. Leupold: Virch. Arch., 1914, 218, H-3, 371.
10. Lissauer: Virch. Arch., 1914, 218, 263.
11. Lugaro: Handb. der path. anat. des Nevensy, Berlin, S. Karger, 1904, Bd. 11, 1153.
12. Manquelian Y.: Annal de la Inst. Past., 1914, XXVIII, 579.
13. Onuf and Collins: Arch. of Neurol. and Psychopath., 1900, 3, 1.
14. Orth: Diagnostik Path. Anat., Berlin, Hirschwald, 6th Ed., 1900.
15. Vas: Arch. F. micr. Anat., 1892.
16. White: Guys Hospital Reports, 1890.

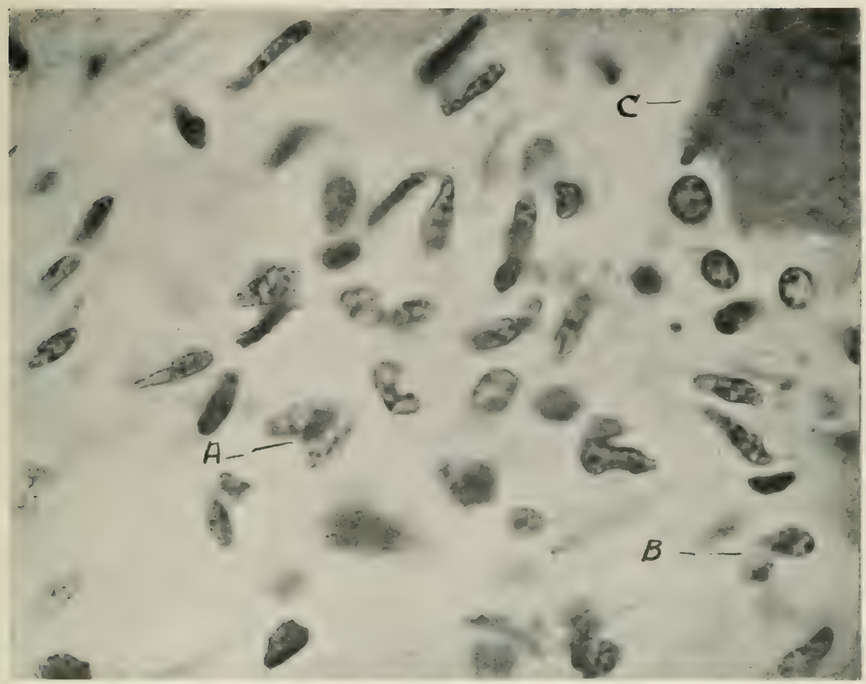


FIG. 1.—Interstitial connective tissue proliferating. Cells *A* and *B*, mitosis. *C*, nerve cell. × 1000. E. M. Blue.

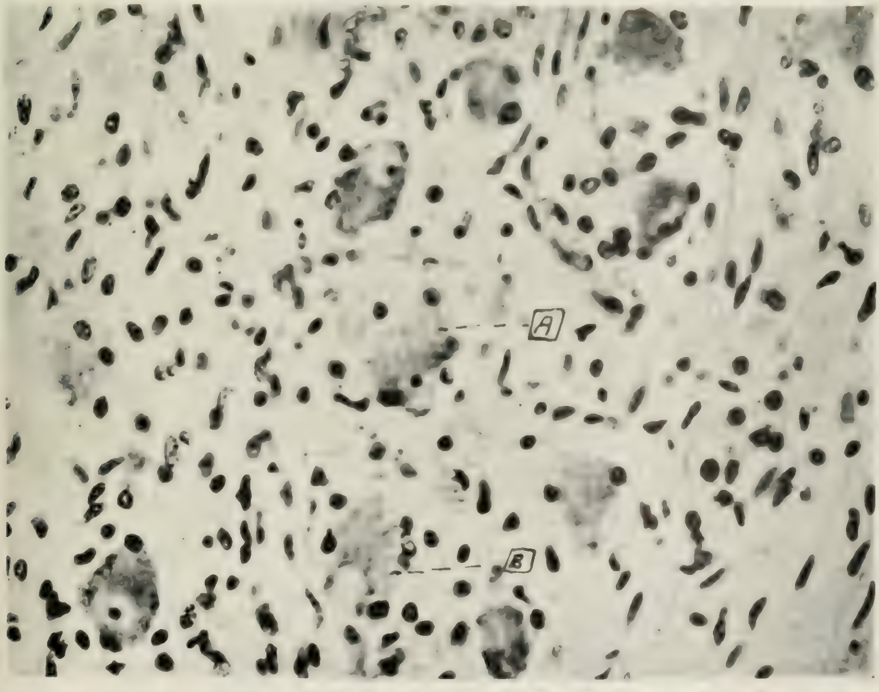


FIG. 2.—Axonal reaction. Cell *A*—Nucleus almost extruded. Cell *B*—Nucleus peripheral. × 340. Cresyl Violet.

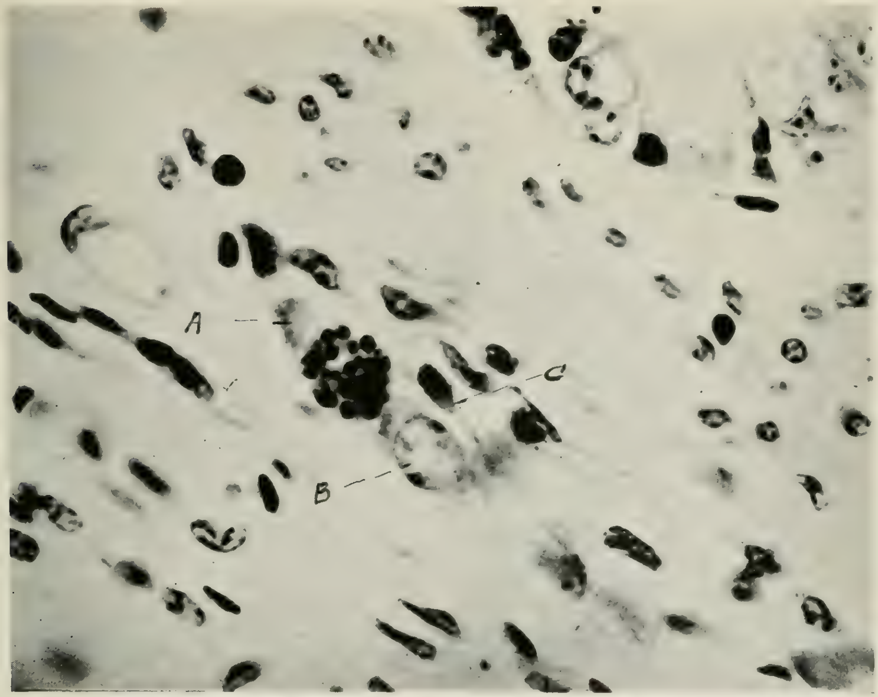


FIG. 1.—Intestine of bull; tubercular enteritis. Cell *A*—Nerve cell, in Meissner's plexus showing large oxyphilic granules. Cell *B*—Swollen nucleus, nerve cell, with two nucleoli. Cell C—Eosinophile. × 1000. E. M. Blue.

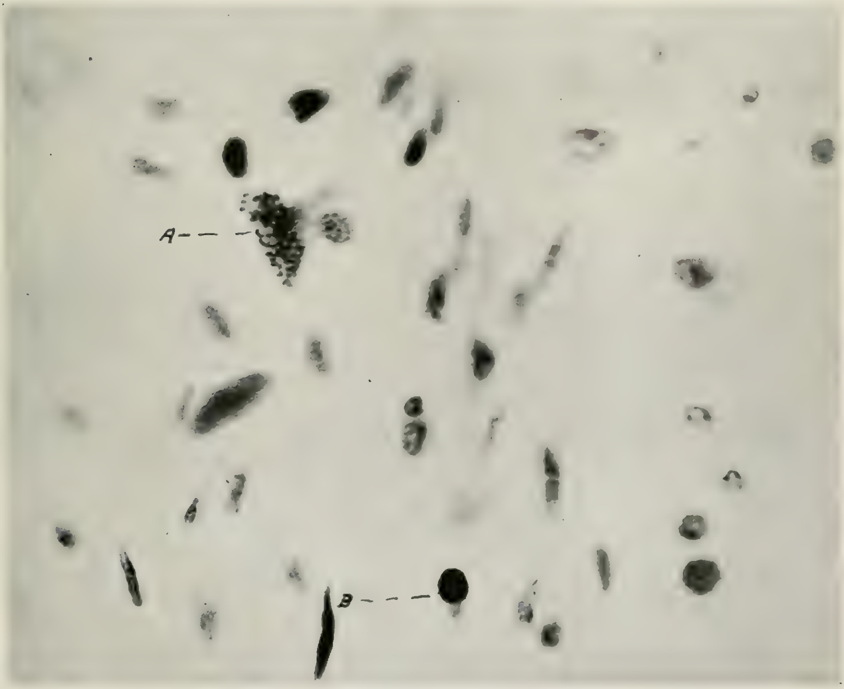


FIG. 2.—Interstitial connective tissue of ganglion. Cell *A*—Eosinophilic reaction cell, with large granules. Cell *B*—Eosinophilic reaction cell, small granules, plasma cell nucleus. × 1000. E. M. Blue.

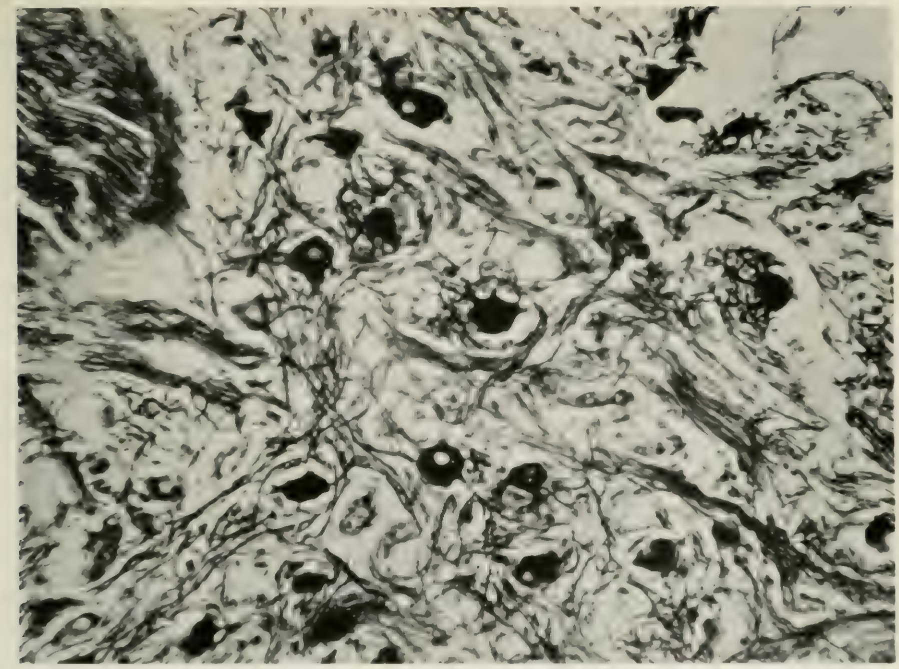


Fig. 1.—Showing multipolar cells. × 140. Bielschowsky.

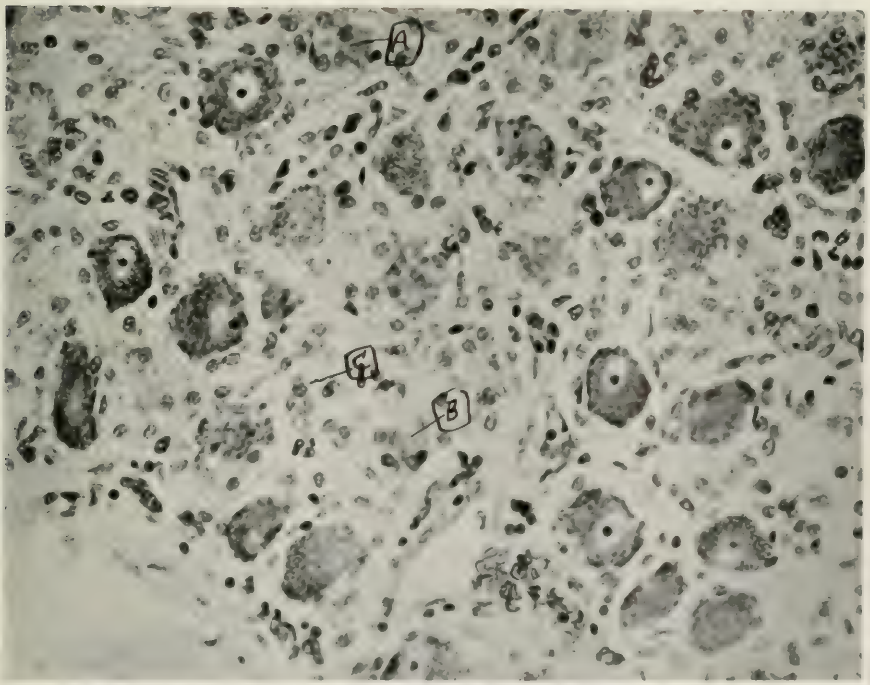


Fig. 2.—Cells *A*, *B* and *C* showing disintegration and replacement. Ep. dementia; 75 years. × 350.

THE WASSERMANN TEST IN PRACTICAL PSYCHIATRY.

AN ANALYSIS OF THE RESULTS OF THE TEST ON 1600 ADMISSIONS TO DANVERS STATE HOSPITAL.

By LAWSON G. LOWREY, A. M., M. D.,

Fellow in Neuropathology, Harvard Medical School; Pathologist to Danvers State Hospital, Hathorne, Mass.

No. 60, DANVERS STATE HOSPITAL PAPERS.

INTRODUCTION.

This paper is in no sense a critique of the Wassermann test as a biological reaction, but is the expression of the practical results of the use of the test in the routine examination of mental cases admitted to this hospital. So far as I am aware, the reports upon the use of this test among the insane which have so far appeared have dealt, to a large extent at least, with groups of selected cases. This is true of Plaut's[1] monograph, and of such other reports as have come to my attention. Southard[2] has written upon the statistics of 6000 tests, but this has very little to do with the use of the results of the test in diagnosis within the institution.

The Wassermann test was first used in selected cases in this hospital in 1910, and in May, 1912, it became a part of the routine examination of all patients admitted. Of 1714 admissions since that time, the test has been performed upon the blood serum of 1600. In 276 cases, the spinal fluid has also been tested. This series of tests—in which there are no selected cases—forms the basis of this paper.

METHODS.

The method of performing the test has varied somewhat from time to time. All tests were performed in the testing laboratory of the Department of Diseases of the Nervous System at the

Harvard Medical School (now the Wassermann Laboratory of the State Board of Health) and the following summary of the method was supplied by the director:

> Three antigens are used—two from human heart reinforced with cholesterin and an alcoholic extract of syphilitic fetal liver. Five cc. of a 5 per cent suspension of washed sheep corpuscles to each tube. Anti-sheep ambocepter, tested daily, 2 units. Complement (10 per cent guinea-pig's serum) 2 units. Patient's serum, inactivated at 56°, 0.1 cc. with each antigen. Ambocepter and complement unit titrated daily. Controls of complement, ambocepter and salt solution for hemolytic power. Strong positive, slight positive and negative control sera: each antigen doubled in amount. Period for fixing complement, 1 hour. Doubtful cases repeated with double amount of serum and appropriate controls. Cerebro-spinal fluid used in five times the amount of sera.

The attempt is made to secure a specimen of blood from each patient admitted. These are kept in the refrigerator over night, and sent to the testing laboratory early the following day. They have always kept in good condition.

ANALYSIS OF RESULTS.

The results of the tests on the blood serum are summarized in the following table:

Table I.—Results of Blood Tests.

	Male.		Female.		Total.	
	No.	%	No.	%	No.	%
Cases tested	864	.....	736	.....	1600	.....
Wassermann positive	164	18.98	92	12.50	256	16.00
Wassermann doubtful...	37	4.28	25	3.39	62	3.87
Wassermann negative....	663	76.74	619	84.11	1282	80.13

The table is subject to further analysis. Thus, many more doubtful reactions have been obtained than appear in the doubtful group in the table. Where a decisive reaction was obtained in a later test, the case was transferred to that group. Hence, those here reported as doubtful are those in which repeated tests were doubtful, or those in which a second test was not done. Unfortunately, a number of the originally doubtful tests were not repeated.

Three cases with conflicting reports have been included in the positive group. Two of these had first positive and then negative, and one positive, doubtful and negative tests. In this series there have been only a very small number of reversals of the reaction, but this is explained by the fact that only a few cases have had repeated tests. It is, of course, true that a single negative reaction does not exclude syphilis, nor, according to the later work on repeated tests, does a single positive reaction constitute indisputable evidence for infection. These criticisms, however, do not materially affect the conclusions to be drawn from the data presented.

In addition to the 256 cases with positive blood test, shown in the table, there are 17 cases (13 male and 4 female) with positive test in the spinal fluid, despite negative (12) or doubtful (5) blood test. (In only one of these cases, twice doubtful, was the blood test repeated.) This gives us 273 cases, or 17.0 per cent of 1600 admissions with a positive test in one or other body fluid.

At this point we may consider the significance of a " doubtful " test. This term is applied to cases giving a positive test with the more delicate antigen, and a negative test with the less delicate antigen. According to some, this also means syphilis. From a statistical point of view, this is not true. Of our group of cases, second and occasionally third tests have been performed in 43 cases where the first test was doubtful. Of these repeated tests, nine (20.9 per cent) were doubtful; five (11.6 per cent) were positive, and 29 (67.5 per cent) were negative. To the positive cases in the above group we may add the five cases with positive test in the spinal fluid and doubtful in the blood, but even then we find not more than one-quarter of the cases eventually showing positive tests after a primary doubtful test. It would certainly seem from this that a doubtful test by no means indicates syphilitic infection. *A doubtful test is, however, of sufficient importance to demand repetition or even examination of the spinal fluid* (which has not been done in all of our cases).

CLINICAL DIAGNOSES OF CASES WITH POSITIVE TESTS.

Table II gives for the sexes individually and together the clinical distribution of the cases with positive blood tests.

TABLE II.—CLINICAL DIAGNOSES IN CASES WITH POSITIVE BLOODS.

Psychosis.	Male.	Female.	Total.
Organic.			
Paresis and cerebral lues	113	32	145
Arteriosclerotic insanity	7	2	9
Organic brain disease	1	2	3
Senile dementia	2	6	8
Functional and Toxic.			
Dementia præcox	8	4	12
Manic-depressive insanity	7	18	25
Epilepsy	1	2	3
Imbecility	3	9	12
Infection-exhaustion	..	2	2
Psychoneurosis	1	2	3
Alcoholic psychosis	10	5	15
Morphinism	1	3	4
Cardio-renal delirium	1	..	1
Paranoid condition	1	1	2
Pre-senile delusional insanity	..	1	1
Not insane	1	..	1
Unclassed	7	3	10
Totals	164	92	256

Of 164 positive blood tests among males, 113, or 68.8 per cent, occurred in cases with brain syphilis, *and the remaining 51 cases constitute only 6.8 per cent of the male admissions other than paretics (751).* Of the organic diseases other than paresis, in which syphilis *might* be concerned in the etiology, there are 10 cases, while positive tests occurred in 33 of the functional and toxic cases and in seven unclassed cases.

Of 92 positive blood tests among females, 32, or 34.8 per cent, occurred in paretics. *Excluding these, the remaining 60 positive cases constitute 8.5 per cent of 704 admissions*—a somewhat higher figure than for the non-paretic males, but not so great a difference as for the 1914 admissions alone (Lowrey[8]). Ten of the 60 fall into the "organic" group, 47 into the "functional and toxic" group, and three were unclassed.

Taking both sexes together, we find that 145 cases, or 56.7 per cent, of 256 cases with positive blood tests were paretic. *Excluding these, there are 111 positive blood tests among 1455 admissions, or 7.6 per cent.* About two-elevenths of these belong in the "organic" group; eight-elevenths in the "functional" group; and one-eleventh in the unclassed group.

FINDINGS IN THE VARIOUS CLINICAL GROUPS.

Of the various groups in which positive blood tests were found, the most interesting is obviously paresis. Tests on the blood serum were performed in 168 cases diagnosed paresis or cerebral syphilis (one case). There were 145 positive, eight doubtful and 15 negative results. That is, 87.5 per cent were positive and 10.3 per cent were negative.

In no other group were the findings so high, and the results are presented in tabular form.

Table III.

Psychosis.	Cases tested.	Positive. No.	Positive. %
Senile dementia	103	8	7.7
Imbecility	113	12	10.6
Epileptic	35	3	8.6
Dementia præcox	240	12	5.0
Arteriosclerotic insanity	96	7	7.2
Alcoholic psychoses	213	15	7.0
Manic-depressive insanity	340	25	7.3
Morphinism	7	4	57.1
Paranoid conditions	34	2	5.9
Toxic-infection-exhaustion	29	2	6.9
Psychoneuroses	37	2	5.4
Organic brain disease	39	3	7.7
Pre-senile delusional insanity	6	1	16.6
Not insane	11	1	9.1
Unclassed	102	10	9.8

It will be noticed that, for the most part, the percentages range between 5 and 10 for each group. The one notable exception is the small group of drug cases. Here more than half gave a positive test. None of these cases were retested some time after the withdrawal of the drug, so it is impossible to say whether or not morphine has an effect on the reaction as seems to be the case with alcohol (*cf.* Craig[4]).

One interesting point comes out in a study of the cases of dementia præcox. Of the 12 cases with positive test, six were of the paranoid type, and they were characterized by the extravagance of their delusions.

It is hardly necessary to point out that larger series of cases in each psychosis are desirable. Accurate statistical conclusions cannot be drawn from so small a number of cases as we have in many of the groups reported in the present study. It is, nevertheless, evident that a person suffering from *any* psychosis may also be syphilitic, and that a positive blood Wassermann test ***does not*** *necessarily mean a psychosis of syphilitic origin. It is very important in all these cases to examine the spinal fluid.*

The percentage of positive tests here reported is somewhat less than that reported on Danvers cases by Paine[5] who, however, only studied 200 cases. Smaller series of cases (separate studies of 1914 and 1915 admissions for the Annual Report) have given me about the same percentage as reported in this paper, so it is felt that these figures are approximately correct for the insane in general.

In this hospital, both provisional and determined diagnoses are made by the assembled staff after all data have been procured, hence it is impossible to give the exact number of cases in which the finding of a positive Wassermann in the blood has pointed the way to a correct diagnosis, but it is certain that a not inconsiderable number of cases have been cleared up by using the test. It takes very much less time to clear up the diagnosis with the aid of the test than if we depend on clinical observation alone. A number of very early cases, which would not otherwise have been diagnosed, have been determined in this way.

In less than half of the cases with a positive test has a history of syphilis been obtained. Several cases with a history of syphilis and good treatment have given a negative test.

RESULTS OF THE TESTS IN THE SPINAL FLUID.

The spinal fluid is submitted to the Wassermann and other tests in two main types of cases, (a) those with positive or repeated doubtful tests in the blood, (b) those with clinical signs pointing to paresis (or other organic condition) and negative blood test. Among the earlier cases of this series, many cases with positive blood test were not punctured, but of this series, 276 had spinal fluid tests performed. There are a few cases in which there was no suspicion of paresis, but puncture was done for some other reason.

The following table (IV) gives a summary of the results of the test for the sexes separately and together.

TABLE IV.—RESULTS OF SPINAL FLUID TESTS.

		Fluid Wassermann Test.			
		Positive.	Doubtful.	Negative.	Unsatisfactory.
Male.					
Blood W. R.					
Positive	130	83	5	41	2
Doubtful	18	4	1	12	1
Negative	38	9	..	29	..
Totals	187	96	6	82	3
Female.					
Blood W. R.					
Positive	59	26	1	32	..
Doubtful	10	1	..	9	..
Negative	20	3	..	17	..
Totals	89	30	1	58	..
Both Sexes.					
Blood W. R.					
Positive	190	109	6	73	2
Doubtful	28	5	1	21	1
Negative	58	12	..	46	..
Totals	276	126	7	140	3

Analysis of this table shows that there were 56 males and 30 females presenting clinical signs such that lumbar puncture was deemed necessary, despite the lack of a positive blood test. Of these, 17 gave a positive test in the fluid. There were 34 male and 32 female cases with positive blood test on whom puncture was not done. Of the cases with positive blood test, 82 of 130 males and 26 of 60 females, averaging over 50 per cent, gave also positive fluid tests. The number of unsatisfactory tests is high, but several of these cases died after a short stay in the hospital. Among the males, there were more positive than negative fluid tests; among the females, nearly twice as many negative as positive results.

In Table V will be found the spinal fluid (and blood) results in the different psychoses. It will be noted that of the 109 cases with positive blood and spinal fluid, 106 were paretics, one was an imbecile, one a drug case, and one a psychoneurotic. The later three may, in the course of time, develop paresis. Of 126 cases with

TABLE V.—BLOOD AND SPINAL FLUID FINDINGS IN CASES PUNCTURED.

Psychosis.	Bl. W. R.	Male. Fl. W. R.				Female. Fl. W. R.			Total. Fl. W. R.				Bl. W. R	Male. Fl. W. R.				Female. Fl. W. R.		Total. Fl. W. R.				Bl. W. R.	M. Fl. W. R.		F. Fl. W. R.		T. Fl. W. R.		Total Cases.		
		P.	D.	N.	U.	P.	D.	N.	P.	D.	N.	U.		P.	D.	N.	U.	P.	N.	P.	D.	N.	U.		P.	N.	P.	N.	P.	N.	M.	F.	T.
Paresis	Positive.	82	5	6	2	24	..	3	106	5	9	2	Doubtful.	4	1	1	..	1	1	5	1	2	..	Negative.	8	2	2	1	10	3	111	32	143
Cerebral syphilis		..	..	1	..	..	..	..	..	..	1	..		..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	..	1	..	1
Organic dementia	“	..	..	..	..	..	..	1	..	..	1	..	“	..	..	..	..	..	1	..	..	1	..	“	1	..	..	5	1	5	1	7	8
Arteriosclerotic	“	..	..	6	..	..	..	..	..	..	6	..	“	..	..	1	..	..	..	..	..	1	..	“	..	5	..	1	..	6	12	1	13
Senile dementia	“	..	..	..	..	..	..	1	..	..	1	..	“	..	..	..	..	..	..	..	..	..	..	“	..	..	..	..	..	..	...	1	1
Alcoholics	“	..	..	7	..	..	..	5	..	..	12	..	“	..	..	4	1	..	2	..	..	6	1	“	..	10	..	..	..	10	22	7	29
Manic-depressive	“	..	..	6	..	..	..	10	..	..	16	..	“	..	..	2	..	..	3	..	..	5	..	“	..	3	..	3	..	6	11	16	27
Dementia præcox	“	..	..	3	..	..	..	1	..	..	4	..	“	..	..	2	..	..	1	..	..	3	..	“	..	3	..	1	..	4	8	3	11
Imbecility	“	..	..	2	..	1	..	7	1	..	9	..	“	..	..	..	..	..	..	..	..	..	..	“	..	..	1	1	1	1	2	10	12
Inebriates	“	..	..	..	..	1	1	..	1	1	..	..	“	..	..	..	..	..	..	..	..	..	..	“	..	..	..	..	..	..	...	2	2
Epilepsy	“	..	..	1	..	..	..	1	..	..	2	..	“	..	..	..	..	..	..	..	..	..	..	“	..	2	..	..	..	2	3	1	4
Psychoneuroses	“	1	..	..	..	..	..	1	1	..	1	..	“	..	..	..	..	..	..	..	..	..	..	“	..	..	..	1	..	1	1	2	3
Paranoid condition	“	..	..	1	..	..	..	2	..	..	3	..	“	..	..	..	..	..	..	..	..	..	..	“	..	..	..	..	..	..	1	2	3
Infect.-exhaustion	“	..	..	..	..	..	..	..	..	..	..	..	“	..	..	1	..	..	..	..	..	1	..	“	..	2	..	2	..	4	3	2	5
Morphin	“	..	..	1	..	..	..	..	..	..	..	..	“	..	..	..	..	..	..	..	..	..	..	“	..	..	..	..	..	..	1	..	1
Traumatic	“	..	..	..	..	..	..	..	..	..	..	..	“	..	..	1	..	..	..	..	..	1	..	“	..	..	..	..	..	..	1	..	1
Not insane	“	..	..	..	..	..	..	..	..	..	..	..	“	..	..	..	..	..	..	..	..	..	..	“	..	1	..	..	..	1	1	..	1
Acromegaly	“	..	..	..	..	..	..	..	..	..	..	..	“	..	..	..	..	..	..	..	..	..	..	“	..	1	..	..	..	1	1	..	1
Unclassed	“	..	..	7	..	..	..	..	..	..	7	..	“	..	..	..	..	..	1	..	..	1	..	“	..	..	..	..	..	2	7	3	10
Totals	......	83	5	41	2	26	1	32	109	6	73	2	....	4	1	12	1	1	9	5	1	21	1	......	9	29	3	17	12	46	186	89	276

NOTES: P = Positive. D = Doubtful. N = Negative. U = Unsatisfactory.

positive fluid test, 121 were paretics; and in addition to the above three cases, there was one imbecile and one case of "organic" dementia.

Of the 143 tests on the spinal fluid of paretics, 123 were positive, six doubtful, 12 negative and two unsatisfactory. Hence there are, of 141 satisfactory tests, only 12, or 8.5 per cent, negative, while 87.2 per cent are positive. Several of these negative cases were tested more than once. There were 25 cases of paresis with blood but no fluid test. The one case of cerebral syphilis had a positive blood and negative fluid test. Not quite 90 per cent of these paretics had a positive blood test and the same proportion had positive fluid test, *and the test is positive in both blood and fluid in about 75 per cent of cases.*

The cases other than paresis with a positive fluid test, mentioned above, form a small residue of interesting cases.

In cases of paresis with a negative Wassermann, the other laboratory tests on the fluid are often positive. A forthcoming paper will deal with these results in detail.

SUMMARY.

Statistics are presented dealing with the results of the Wassermann test on the blood serum of 1600 cases admitted to Danvers State Hospital. Only cases are reported in which the test has been used as a part of the routine examination.

Of 864 male cases tested, 164, or 19 per cent, were positive. Of 736 female cases, 92, or 12.5 per cent, gave positive tests. Of the 1600 cases tested, 256, or 16 per cent, were positive. Doubtful tests occurred in 3.87 per cent of the cases.

Including cases with positive spinal fluid test and negative or doubtful blood test, 273, or 17 per cent of 1600 admissions, give a positive test at some point.

Of 164 positive blood tests among males, 113, or 68.8 per cent, occurred in cases of nervous syphilis. Of 92 females with positive blood test, 32, or 34.8 per cent, were paretics. Of 256 cases with positive blood test, 145, or 56.7 per cent, are cases of nervous syphilis. Excluding paretics from all figures, positive tests occurred in 7.6 per cent of 1455 admissions.

Of the non-paretic cases with positive blood, 20 are "organic," 80 are "functional" and 10 are "unclassed."

It appears that, if an insane man has a positive blood test, the chances are better than even that he will be a paretic; while if a positive test appears in an insane female, the chances are that she will not be a paretic. When paresis is excluded, the chances are about three in four that the person with positive blood will have a "functional" psychosis.

An unexplained finding is the high percentage of positive blood tests among morphin habitues (small number of cases). No other non-paretic group contains any considerable group of cases with positive Wassermann. A person suffering from any psychosis may be syphilitic without belonging to the nerve syphilis group.

Doubtful Wassermann tests later show positive reactions in blood or spinal fluid in about one-quarter of the cases. The test should always be repeated.

Among the paretics of this series, the blood test was positive in 87.5 per cent and negative in 10.3 per cent. The spinal fluid test was positive in 87.2 per cent and negative in 8.5 per cent, while the test was positive in both fluids in 75 per cent of the cases.

Of 276 cases with test on the spinal fluid, there are 126 positive results. Of these, 109 had blood and fluid test both positive; five had doubtful blood and positive fluid test; 12 had negative blood and positive fluid test

Of the 126 cases with positive fluid test, 121 were paretics; two imbeciles: one was organic dementia; one a heroin case; one psychoneurotic. The latter five may in the course of time develop paresis.

The statistics here presented give evidence of the great practical importance of the Wassermann test in practical psychiatry.

REFERENCES CITED.

1. Plaut, Felix. 1912. The Wassermann Serum Reaction in Psychiatry. Nervous and Mental Disease Monograph Series, No. 5.
2. Southard, E. E. 1914. Statistical Notes on a Series of 6000 Wassermann Tests for Syphilis Performed in the Harvard Neuropathological Testing Laboratory. Boston Medical and Surgical Journal, CLXX, p. 947.
3. Lowrey, L. G. 1914. Annual Report of Danvers State Hospital.
4. Craig, Charles F. 1915. The Results and Interpretation of the Wassermann Test. American Journal of Medical Sciences, CXLIX, p. 49.
5. Paine, H. L. 1913. Results of the Wassermann in 200 Consecutive Admissions to Danvers State Hospital. Boston Medical and Surgical Journal.

THE SENSIBILITY OF THE NIPPLE AREA WITH REFERENCE TO MENTAL DISEASE.

By MILDRED E. SCHEETZ, M. S., M. D.,
Assistant Physician, Government Hospital for the Insane.

In the observation of those nervous and mental affections of whose bodily nature we know little, we sometimes find motor and sensory symptoms, contradictory in character, and apparently obeying no known law. Of the disturbances, pain is the most frequent. Small isolated zones, painful to the slightest touch, exist fairly constantly, at times associated with areas of lessened or increased sense of touch. Oppenheim finds cutaneous and mucous anesthesias often associated with hyperesthesias, and areas on which painful stimuli are not normally perceived as painful. These areas may be hypersensitive to the slightest touch, which in itself may elicit acute pain. These areas have been called hysterogenic zones, but they are probably not entirely found in hysterical conditions.

Of these so-called hysterogenic zones—supposedly indicators of higher functional derangements—perhaps the most significant are those in connection with the sexual sphere. Graves,[1] in his investigation of sensory disturbances involved in cases of hysteria of both sexes, found a peculiar abnormality of sensation, namely, an anesthesia associated with hyperalgesia sharply confined to the areola-nipple area. The dividing line between the anesthetic and hyperalgesic area and the area of normal sensibility was very sharp, the change from the normal sensation being found wholly within the pigmented area. As this peculiarity was more or less constant in 30 cases of typical hysteria, the conclusion was drawn that " areola-nipple anesthesia associated with hyperalgesia is a pathognomonic and fairly constant stigma in hysteria." He also notes experiments on the normal individual, in which, as a rule, the reverse sensory conditions were found, the majority claiming to perceive "touch" more, and "pain" less acutely in the areola-nipple area than in the surroundings parts. A few noticed little or no difference. For a number of years this phenomenon was given credence as a diagnostic sign, without knowledge of its physiological and anatomical significance.

---

[1] W. W. Graves. Anesthesia associated with hyperalgesia sharply confined to areola nipple-area of both breasts; a new and apparently constant stigma in hysteria. Journal of Nervous and Mental Disease, Oct., 1905.

In a series of experiments on the accuracy of localization of touch on different bodily segments, Franz[2] observed that in the normal areola-nipple area, touch stimuli gave no response until the pressure was more than that for light touch on the surrounding parts. The parts were insensitive to light touch. In no case tested was it found possible to produce a sensation with the light touch of a camel-hair brush, it was usually necessary to have considerable deformation of the surface before any sensation was obtained. This areola-nipple area was also found to be more or less insensitive to heat and cold. From his experiments it was apparent that the sensibility of the nipple and areola, in the normal individual, is less than that of the surrounding parts of the breast.

In a series of localization tests, performed for other purposes, I was able to test the sensibility of the normal nipple area, and in all cases I found total insensibility to light touch (cotton-wool), associated with a lack of accurate localization for deep touch. This confirms the observations of Franz, and would indicate that the condition is not found only in hysterics, as Graves supposed.

The deep touch sensation from stimulation of the nipple was usually located somewhere on the breast outside of the pigmented area. Pin pricks, in both areola and nipple regions, were at times quite accurately localized. They were always felt acutely, being associated with a disagreeable sensation of burning and tingling, and accompanied by frantic warding-off movements.

The prominence given to the sexual side, or origin, of certain psychoses, suggested the possibility of some concomitant sensory changes in the reproductive organs, both primary and secondary, and the present work was undertaken in order to discover any changes which might be present.[3] The primary sexual organs are, for various reasons, difficult to test, in some cases impossible, and a beginning was made with the secondary sexual apparatus, the breast and especially the nipple-areola region. Ten cases were chosen in which a sexual emotional content appeared to be a prominent exciting factor. In the nipple region tests were made of light touch, pressure, and pain as elicited by pin pricks. Each individual was tested for each form of sensibility ten times, in order that the results might not be considered accidental. The patient—blind-folded and reclining on the examining couch—was asked to indicate by " yes " or " no " when a stimulus was given, and to locate the point stimulated by means of the opposite index finger. After the first series of stimulations, erection of the nipple (unless already apparent) was brought about by means of irritation or by a light application of xylol. The tests were then repeated, and after relative elimination of the distressing elements of pain stimuli, by means of a few passes over the part with damp cotton-wool, a series of tests for " free word associations " to deep touch was made. The results of this series varied considerably, as is shown below.

---

[2] S. I. Franz. The accuracy of localization of touch stimuli on different bodily segments. Psychological Review, March, 1913.

[3] I am indebted to Dr. S. I. Franz, of this institution, for the suggestion of the problem, and for his advice during its investigation.

Case I.—Well-developed white woman, in excellent health, aged 49, married; mother of two children, both bottle-fed. Diagnosis: undifferentiated confusion, with delusions as to husband's fidelity. Breasts medium in size, firm; nipples small; areola pink, about 5 cm. in diameter, with but little veining, and few glands of Montgomery.

First Series.—Light touch not felt on any part of the nipple-areola area. Deep pressure, felt on all parts, but poorly localized, mostly on surrounding breast regions. Pain (pin pricks) felt, and the sensations were reported to be more acute than usual. The most intense sensations were obtained from the top of the papillæ.

Second Series (after erection was induced).—No sensation to light touch, deep pressure felt more strongly than before, and there was a decidedly " embarrassing " feeling associated with the stimulations. Pain was also judged to be more acute than in the first series, and the patient continually protested against the repetition of the test.

Third Series (word association—pressure).—The associations and some explanations of them are as follows:

Funny.—This was used more in the sense of embarrassing, which was used as a descriptive term for the sensation itself.

Go.—This reaction was a word indicating her desire, or wish, to get away from the embarrassing situation.

Brook.—The recollection of an occurrence in early life, when she sat on the bank of a small stream in which some naked youths were bathing.

She recalled her great embarrassment and her leaving the scene hastily. The recollection of this scene is always attended with a shame-like feeling.

Boat. Trees. Shadow. Afternoon. Floating.—These five word associations were due to a later episode, the sexual nature of which may be imagined.

Following these eight reactions there were two failures. The patient was resistive, saying that nothing more would come to her mind, etc.

After Effects.—There were no untoward after effects.

Case II.—White woman, anemic, aged 46, married; mother of two children, breast-fed. Manic-depressive type with cardiac complications; continually yearning for husband's withdrawn affections. Breasts large, somewhat pendulous; nipples large and long; areola 7 cm. in diameter, darkly pigmented.

First Series.—Light touch not felt on any part of nipple-areola area. Deep pressure, felt on all parts, but poorly localized. Pain (pin pricks) felt, but not localized, described as a confused unbearable sensation.

Second Series (after erection was induced).—No sensation to light touch, deep pressure felt more strongly than before, much erotic content aroused, due, as patient admitted, to the fact that manipulation of the breast was frequently the prelude to copulation. Pain was so acute that patient refused the test.

Third Series (word association—pressure).—As follows:

God.—This reaction was not apparently connected with the stimulus, for she explained that she meant that God would take care of her, and that she should not worry.

Helpless.—This was a description of her general feeling.

Love.—A depressive idea, that she was not treated as a wife should be, and that love (sensual), which she desired, was being bestowed on another woman.

Baby.—This was a recall of her younger and favorite child, whom she preferred to the older on account of the likeness of the latter to the father.

Blue.—Not a color, but a description of her own feeling when she thought of the association of her husband with other women.

Black.—Similar to the last, descriptive of her feeling that "the loss of her husband's fidelity took the taste of happiness from her."

Darkness.—The same as "black."

There were three failures to respond in this case.

After Effects.—For the rest of the day patient wept bitterly at any mention of her husband.

Case III.—White woman, poorly nourished, aged 53, single; a case of undifferentiated confusion, associated with frequent attacks of sexual excitement. Breasts small, firm; nipples medium in size, firm and round; areola 5 cm. in diameter, slightly pigmented, with numerous long hairs about its margin.

First Series.—Light touch not felt on any part of areola-nipple area. Deep pressure elicited no response, although it was evident that the touch had been perceived. Pin pricks were angrily warded off.

Second Series (after erection was induced).—No sensation to light touch. Deep pressure brought no response, but patient began to exhibit signs of sexual excitement, declared that the nurses were men in women's clothing, and that attempts at sexual assaults on her body were being committed by them; became so excited that the test for pain was not made.

Third Series (word association—pressure).—Patient refused to cooperate.

After Effects.—Patient's speech and actions showed a marked degree of sexual excitement at frequent intervals for several days.

Case IV.—White woman, excellent health, aged 38, single, actively homosexual; suffering from a depression due to chronic alcoholism and emotional exhaustion. Breasts small, well-shaped, firm; nipple small, with slight elevation above level of areola; areola pink, 5 cm. in diameter, blue-veined, few glands, no hair.

First Series.—Light touch not felt on any part of areola-nipple area. Deep pressure felt on all parts, but poorly localized. Pain (pin pricks) felt, not definitely localized; reported as being distasteful in character.

Second Series (after erection was induced).—Sensation of light touch varied; three times the stimulus was felt, when it was ascertained that a dependent portion of the cotton-wool "dragged" on the side of the nipple, bringing about a slight deformation of the surface. Deep pressure felt and accurately localized, patient admitted a pleasurable excitement, accompanied by sensual imagery, also confided that a continuation of such stimuli would induce an episode of sexual character.

Third Series (word association—pressure).—As follows:

Fever.—This was an abbreviation for "fever of desire," which expression was used by the patient whenever she had certain experiences like those which occurred to her in early life, when in an early episode she thought a feeling of warmth indicated a fever.

Pepper.—The recollection of a story told to her many years before by a girl companion that this was used for inducing sexual desire.

Fear. Desire. Weak.—These refer to certain sadistic tendencies frankly confessed by the patient.

Mouth.—This was a frank reference to intra-buccal kissing.

Hurry.—This was repeated many times and was said by the patient "to keep one keyed up to a high level."

Beautiful. Girl.—Imagery of desire, the patient being homosexual.

Baby.—Also imagery, of her cuddling her "sweetheart" who acted as an infant.

After Effects.—Fifteen minutes later patient remarked that the sensation of pressure was still present, that the slightest touch of clothing caused erection of the nipple, accompanied by a feeling of warmth and pleasure in the primary sexual areas.

Case V.—White woman, good physique, aged 28, single, prostitute, neurasthenic; for three months previously had lived at a gay summer resort as mistress of an elderly man. Breasts medium in size, well-formed, firm; nipples prominent, round and firm; areola 7 cm. in diameter, somewhat pigmented, hypertrichosis about areola margin.

First Series.—Light touch not felt on any part of areola-nipple area. Deep pressure felt, but poorly localized. Pain (pin pricks) felt and accurately localized, accompanied by feeling of dislike and avoidance.

Second Series (after erection was induced).—No sensation to light touch. Deep pressure felt more acutely than in first series; called forth a series of vague pains, pleasurable in character, which were remarkable for their long duration and "explosive" effects; not only was the original stimulus long in duration, but an after-sensation occurred that presented itself with variable intensity at frequent intervals for a half hour afterward. She admitted a pleasurable excitement of the genitalia in connection with this after-image, accompanied by other physical phenomena, such as alternate hot and cold flashes, shivering, chilliness, rapid respiration. She evinced the desire to continue the sensation until a culmination of a pleasurable character occurred. Pain (pin pricks) was intense, at times felt before contact occurred, described as an unbearable, "keyed-up" sensation. The memory image of this sensation occurred frequently, attended by a nervous shivering.

Third Series (word association—pressure).—As follows:

Hurry. Hurry. Hurry. Hard. Harder. Harder. Hurry. Hurry.—The first eight reactions were not associations in the accepted use of the term, but only her usual reactions to accentuate the sexual sensations.

Hot.—A personal term for a state of desire.

Red.—A true association, dating from early childhood and referring to sexual activities, the origin of which the patient could not give.

After Effects.—Nipples remained in a semi-erected condition for 24 hours, being easily stimulated into full erection by irritation of clothing. Dreams were frankly sexual or sexually symbolic (snakes, babies, toads, copulation, etc.). When memory of stimulus recurred, a desire for sexual activity obtruded itself into consciousness.

CASE VI.—White woman, physical health excellent, aged 27, married, no children; infrequent attacks of excitement alternating with periods of depression. Breasts medium in size, cup-shaped, firm; nipples round, firm; areola 7 cm. in diameter, pink, blue-veined, slightly pigmented, no trichosis.

First Series.—Light touch not felt on any part of areola-nipple area. Deep pressure felt but not localized. Pain felt and accurately localized.

Second Series (after erection was induced).—No sensation to light touch. Deep pressure felt; not accurately localized. Patient exhibited marked sexual emotion. Pain (pin pricks) severe, lasting and "explosive"; endured for several moments after original stimulus had ceased.

Third Series (word association—pressure).—As follows:

Stop.—This was not a true association, but an order to cease because she believed the stimulus was to be increased to the painful point.

Monkey.—Visual image of seeing a large monkey hold a small monkey to the breast. She then thought that motherhood was sweet to all animals, and that having a baby at her breast would be a tender feeling.

May. River.—Both of these were visual images of having attended a picnic in her later girlhood, of having hugged a tree and of having the feeling of pressure on her breasts therefrom.

Girl. School. Letter. String.—This was the same association repeated, of having received at school a billet-doux tied with a red string.

Box.—A theater box which she desired to occupy, where she had seen women in decollete dress.

After Effects.—Patient quiet, pensive—apparently no untoward effects.

Case VII.—White woman, small in stature, poorly nourished, aged married; mother of three children, all bottle-fed; grief over husband's defection initiating attacks of depression. Breasts small, poorly developed, nipples retracted, forming a crater; papillæ prominent in pit; areola elevated, 5 cm. in diameter, darkly pigmented, few scattered short hairs at areola margin.

First Series.—Light touch not felt on any part of areola-nipple area. Deep pressure felt, not localized. Pain (pin pricks) elicited sharp, stinging sensation.

Second Series (after erection was induced).—The areola became markedly elevated. No sensation to light touch. Deep pressure felt, not localized. Patient became rigid, admitted of pleasurable feelings, induced by referred sensations in true sexual organs. When inverted nipple stimulated only a sense of pain elicited. Pain (pin pricks) on all parts of area intensified.

Third Series (word association—pressure).—As follows:

Sky. Moon. Wind.—A beautiful evening when the wind was soft. She could not explain why she thought of it.

Hand.—The hand of God. (No other explanation.)

Heaven. Hell.—An association regarding the possibility of the eight children which were killed by self-induced abortion, having souls, and their probable whereabouts, and whether or not she would be punished for her acts.

Toad.—Visual image of a loathsome thing. No reason for the association could be given.

Child.—Her own child, whom she loves dearly, and who is to be operated upon.

Baby.—This had reference to the condition of her nipple which could not be suckled by an infant.

Angel.—This "means pure and white. Not many people are that way."

After Effects.—Patient became quite inaccessible, sat for hours gazing into space.

Case VIII.—White woman, well-nourished, florid, aged 42, widow; one child, breast-fed. Diagnosis: undifferentiated confusion. Breasts large, well-shaped; nipple round, firm; areola 7 cm. in diameter, darkly pigmented.

First Series.—Light touch not felt on any part of areola-nipple area. Deep pressure poorly located. Pain (pin pricks) felt intensely.

Second Series (after erection was induced).—No sensation to light touch. Deep pressure felt, located accurately. Admitted desire for sexual satisfaction, accompanied by associated sensations of pleasurable excitement in both nipple and genital areas. Pain felt and protested against with such emphasis that test was discontinued.

Third Series (word association—pressure).—As follows:

Man.—A certain man with whom she recently fell in love.

House.—Her own home, which seems empty without some one in it. She would like to have the "certain man" occupy it.

Red.—Meant "love."

Chair. Table. White. Paper.—The association of a chair in which she usually sat at a table and thought of the man previously referred to. The paper made her think that perhaps other women were writing to him.

Trees. Road.—"The way to happiness. One goes a long way to get it."

Forest.—This was a recall of a dream in which she saw her husband's grave. The grave opened and the lid of the coffin came up. She believed this meant that all of her hopes were buried.

After Effects.—Patient laughed sillily, volunteered foolish remarks about her regard for a man about whom she attempted suicide. Delusions about daughter's chastity present.

Case IX.—White women, well nourished, aged 68, widow, three children. Senile dementia, delusions of a happy love marriage, and of persecutions through electricity. Breast small, somewhat pendulous; nipples long, poorly formed; areola 7 cm. in diameter, darkly pigmented, few scattered hairs at margin.

First Series.—Light touch not felt on any part of the areola-nipple area. Deep pressure felt, not localized. Pain (pin pricks) felt, elicited an angry protest.

Second Series (after erection was induced).—No sensation to light touch. Deep pressure brought no response, patient smiled in a silly manner and remarked that "young married folks ought to be happy"; refused cooperation in localization test. Pain (pin pricks) felt acutely, causing a sensation of a "red-hot coal" being applied to the part.

Third Series (word association—pressure).—As follows:

July.—This was an apparent association to the sensation of warmth that the stimuli gave her.

Money.—Association with "care-free" love. She believes she has $196,000,000,000, and that she has no more need for work or worry.

Electricity.—Probably also a description of sensations, or an association to the sensation of warmth, as in the first test. She believes that she has electric currents in the form of darts passed through her body.

Man.—This was an idea of the particular man "upstairs," who was operating the electrical machine which was sending the currents into her body.

Go.—An expression of an apparent half-hearted desire to escape from the electrical currents.

River.—The "River of Life," referring to Biblical matters, in which it is a broad stream that flows in through the gates of Paradise. The sexual content is not evident but concealed.

Moon. Silvery.—At times there is a ring around the moon. This means for her both money and marriage, the two being essential for happiness.

Electricity.—Nearly the same as in the second association given above, referring to the warm, tingling sensations which were pleasurable.

Science Healer.—She has been treated by Christian Scientists, and is even at this time having "absent treatments." A man whom she met at one of the gatherings is here referred to and she is incensed against him (probably the one to whom she believes she is married). Whether or not he is the individual who is sending the electrical darts through her body could not be definitely discovered, although there is more evidence than a suspicion that this is the case.

After Effects.—No untoward effects noted. Patient sat for hours in a dreamy state, made no comment upon physical state, except declaring that electrical darts were continually being passed through her body.

Case X.—White woman, poorly nourished, neurotic in type, aged 48, married, no children; undifferentiated confusion, characterized by frequent attacks of sexual excitement. Breasts small, emaciated; nipples large and prominent; areola 5 cm. in diameter, darkly pigmented, hypertrichosis at margin.

First Series.—Light touch not felt on any part of areola-nipple area. Deep pressure felt and accurately localized. Pain (pin pricks) felt, accurately localized, described as a burning sensation similar to that produced by nettles.

Second Series (after erection was induced).—No sensation to light touch. Deep pressure accurately localized, patient became garrulous, language foul and profane, ideas frankly wish-fulfilling in character. Admissions of pleasurable sexual excitement obtained through nipple-manipulation by the opposite sex, vivid imagery of sexual act with comments upon perverse acts, followed each other in rapid succession. Pain (pin pricks) felt acutely; apparently brought about a subsidence of the preceding erotic mood. Patient began to whimper, became anxious, fearful about small home affairs, at times railed angrily against the impotence of her elderly husband.

Third Series (word association—pressure).—The word-associations in this test were too vulgar and profane for repetition.

After Effects.—No variance of daily occurrences. Patient's thoughts entirely confined to sexual episodes.

These ten cases show the following:

(1) A decrease or lack of sensitivity to light touch throughout the whole areola-nipple region.

(2) The retention but inaccurate localization of pressure sensation under normal conditions.

(3) The exaggeration of pain sensations, both in the erected and in the unerected states, but more intense in the former.

(4) The increase in sensitivity for pressure and pain stimuli when an erection of the nipples was induced.

(5) The "reference" of the sensations to the true sexual organs; at times by the stimulation of the unerected nipple, but in nearly every case when the erected nipple is stimulated.

(6) There is probably no great difference in the quality of the sensations of the patients and the normal individuals previously reported upon, and those whom I have had the opportunity to test. Whatever difference exists, is probably an increase, or intensification, in the pathological cases.

(7) The "reference" to the true sexual organs is more constant in the patients here reported upon, but this may be due to the fact that all had had previous sexual experiences, and some of the normal individuals presumably had not. All the patients who were examined were of the so-called "sexual" type, which condition may be contributory to this result.

(8) In most cases the associations reported indicate plainly the sexual content without any further analysis.

(9) The anesthesia with hyperalgesia of the nipple area, thought by Graves to be pathognomonic of hysteria, is probably only a slight variation of a normal condition.

In this connection it is interesting and of value to summarize the most recent findings regarding the nerve supply to this part of the body. We find that the nipple is abundantly provided with nerve fibers, ending in capsullated and non-capsullated forms. Among the various end-organs to be especially emphasized is the great number of well-developed simple and compound genital bodies, their presence permitting the conclusion that the innervation of the nipple is more closely related to that of the genital organs than to that of the skin. To this innervation may be due the evident association of sensation referred from the nipple to the true sexual organs.[4]

---

[4] Judging by analogy we may believe that the grouping in the spinal cord of the impulses resulting in pain, touch, temperature, etc., may be paralleled by the association of these genital sensation impulses. This might be explanatory of the "reference," although, with regard to the anatomical connections, information is lacking.

The prolonged after effects found in most of the patients are of greatest interest. This difference from the condition in those normal individuals who have been examined is marked. It seems likely that the more intimate connection between the sexual organs, primary and secondary, is a factor in the production of sexual ideas and in the development of sexual feelings or desires. An "incipient" irritation of the nerve endings, although not yet felt in full consciousness, may be the starting point of a sub-excitement, a frequent repetition of which may produce lasting effects. The irritations of dress, of weather conditions, and other forms of stimuli, may evoke in patients in whom the connections between the primary and secondary sexual organs are most intimate and most intense, those ideas and tendencies to action which had been previously deplored or repressed, thus stirring into activity some experience or desire stored up in the unconscious and long since forgotten.

That diseases of the sexual organs tend to influence mental life has long been recognized, but little is known scientifically regarding the normal sexual feelings and sensations. Careful analysis of the sexual sensations is lacking, although it is apparent that an understanding of them might give us information of value for the explanation of many perverse or abnormal ideas. Many hypothetical explanations have been offered, but in order that we may correctly interpret morbid mental processes we must have better and more intimate knowledge of the physiological processes than we possess at present. We must have more specific knowledge of the normal for comparison with the abnormal. The present work aims to give for one of the accessory sexual organs a beginning of this information, without which there will persist a sharp clinical distinction between mental and physical, which does not in reality exist. Whether or not the pressure and pain hyperesthesias in these cases are due to "ideas," or the "ideas" due to the hyperesthesias, can be concluded only after further study and more careful examination.

THE TREATMENT OF PARESIS (PRELIMINARY REPORT).*

By BRITTON D. EVANS, M. D., Medical Director,

and

FREDERIC H. THORNE, M. D., Pathologist,

New Jersey State Hospital at Morris Plains.

INTRODUCTION.

Since 1913 a considerable amount of work has been done in treating the different forms of tertiary syphilis of the central nervous system, intraspinously with salvarsan and neosalvarsan.

At one time these diseases were looked upon as "parasyphilitic" in origin, but the researches of Noguchi, Moore, Marie and Levaditi, who have found the treponema pallida in the brains and cords of general paralytics and tabetics, have conclusively proven that they are active syphilitic processes.

Previous to the discoveries of the above named observers, these diseases were vigorously treated with mercury and iodides, but with little or no success. The reason that they did not respond to this treatment was not obvious until it was found that the choroid plexus has a selective action which prevents practically all drugs and antibodies from entering the cerebro-spinal fluid.

When this fact became established the various workers began to look for a method whereby medicinal agents could be mingled with the cerebro-spinal fluid and not be filtered out by the choroid plexus. Marinesco injected into the spinal arachnoid cavity the blood of syphilitic patients previously treated with salvarsan. Robertson followed the same method. Sicard and Lapointe injected one-tenth of a milligram of mercuric cyanide dissolved in five cubic centimeters of saline solution into the cerebral subarachnoid space and later tried minimal doses of neosalvarsan by the same method. Forester injected into the cerebral subarachnoid space and into the cerebral ventricles 20 cubic centimeters of the patient's own serum.

---

* Read at the seventy-first annual meeting of the American Medico-Psychological Association, Old Point Comfort, Va., May 11-14, 1915.

Swift and Ellis devised a method similar to that reported by Marinesco and Robertson, but with some modifications, which will be described in another part of this paper.

The method of Swift and Ellis has been tried by numerous observers in America and in Europe. Some of these men have reported excellent results, while with others the results have not been so promising.

In this institution, the New Jersey State Hospital at Morris Plains, we have treated 15 patients suffering from paresis with salvarsan and neosalvarsan. Fourteen of these patients were treated by the intraspinous method of Swift and Ellis and one by the intraspinous and intracranial methods combined. With the latter method two intracranial treatments were given at four weeks interval along with three intraspinous treatments.

TECHNIQUE.

The technique governing the treatments was that devised by Swift and Ellis and is as follows:

One hour after an intravenous injection of salvarsan or neosalvarsan 50 cubic centimeters of blood were withdrawn from a vein with a large-bore needle into a sterile, side-necked, 100 cc. test tube, and allowed to clot, then placed in the ice-box over night. The following morning the clear serum was drained off through the side neck into a sterile test tube, and diluted to a 40 per cent solution with normal salt, then inactivated for one-half hour in a water bath at 56 degrees centigrade.

The interval between the intravenous injection and the withdrawal of the blood was later reduced to 20 minutes, because it was demonstrated that the salvarsan content in the blood was at its height at the end of 20 minutes, and that it was impossible to find a trace of the drug at the end of an hour.

The serum being ready, a lumbar puncture was made and the cerebro-spinal fluid allowed to flow until there was a considerable interval between the drops.

A 30 cc. luer syringe, to which was attached a rubber tubing 40 centimeters long, was filled with the diluted serum and this serum allowed to flow into the tube to expel the air. The free end of this tube was then attached to the end of the lumbar puncture needle, the syringe elevated and the serum allowed to flow into the spinal subarachnoid space.

When the entire amount of serum had flowed into the subarachnoid cavity, the patient was put into bed, the foot of which was kept in an elevated position for four hours.

The patients were allowed to get up after 24 hours, if there were no severe reactions from the salvarsan.

With the intracranial case the technique was the same as in the intraspinous cases up to the administration of the salvarsanized serum. Here a trephine opening was made in the skull over the anterior central gyrus, a small-bore, curved needle was introduced beneath the dura and the serum allowed to flow into the subdural space. Previous to the administration of the serum a lumbar puncture was made and 25 cubic centimeters of cerebro-spinal fluid withdrawn.

The reaction following the administration of salvarsan and salvarsanized serum was very slight. In some cases there was a slight elevation of temperature, in two cases there was considerable pain in the lower extremities for 24 to 48 hours, and in three others there was considerable œdema of the lips and tongue, lasting one to three hours.

Special attention was given to the carrying out of the Wassermann tests and to the cell content of the cerebro-spinal fluid. All the tests were made with plain alcoholic extract of guinea pig heart and all were controlled with known positive and negative sera.

The cell counts were made with a Fuchs-Rosenthal chamber and methyl-violet and acetic acid used as a staining agent. Two counts were made on each specimen of fluid and if there was a marked difference in these counts a third or even a fourth one was made and the average of these taken.

Noguchi's butyric acid method was employed for determining the globulin content.

REPORT OF CASES.

In selecting our cases for treatment we endeavored to employ those which we thought would be the most amenable to treatment, that is, the earliest cases we had and those in the best mental and physical condition.

The following gives a short abstract of each case; the clinical observations following treatments; the Wassermann reaction with the blood and cerebro-spinal fluid; the cell and globulin content of the latter, before and after treatment; the dose of salvarsan and neosalvarsan given, and the percentage and amount of serum injected into the spinal subarachnoid cavity.

1. F. R. Admitted March 19, 1913, age 38, occupation purchasing agent, chancre in 1899, onset of psychosis 14 months previous to date of admission.

Physical Status.—Very anæmic and poorly nourished; pupils unequal and stationary; tremors of tongue, facial muscles and extended fingers; slurring speech; ataxic gait, and marked Romberg.

Mental Status.—Memory greatly impaired; marked euphoria; grandiose ideas; very irritable at times and had no insight into his condition.

This patient received 10 complete treatments with neosalvarsan. The cell content of the spinal fluid was 40 before beginning treatment and 52 when last treatment was given. The Wassermann reaction with the blood and the spinal fluid remained positive throughout the course of treatment and the globulin content remained above normal.

After the first three treatments he showed considerable physical improvement. He gained in weight and assumed a more healthy color, his appetite improved and his pupillary reflexes returned to normal. He continued to improve physically throughout the course of treatment, but there was no change in his mental condition, except that he became more quiet. At present he is very much demented and takes little or no interest in his surroundings. Thirteen months have elapsed since last treatment.

2. E. K. Admitted August 20, 1913, age 50, occupation electrical engineer, chancre 17 years ago, onset of psychosis about one year previous to date of admission.

Physical Status.—Poorly nourished; pupils unequal, stationary and dilated; tremors of tongue, facial muscles and extended fingers; slurring speech; walked on a very wide base.

Mental Status.—Memory good; marked euphoria and grandiose ideas; very mischievous and was constantly interfering with the other patients; had no insight into his condition.

This patient received six treatments with salvarsan and neosalvarsan intravenously and five intraspinously. The cell content of the cerebro-spinal fluid was reduced from 39 to 15 cells per cm. The Wassermann reaction with the blood and spinal fluid remained positive throughout the course of treatment and the globulin content remained above normal.

He began to show evidences of improvement in his mental and physical condition after the second treatment. He continued to improve rapidly and was given parole. His mind became perfectly clear and he had good insight into his past and present conditions. His speech remained unsteady, tremors of facial muscles and extended fingers persisted, pupils remained stationary and he walked on a wide base.

He was taken home by his friends on July 5, 1914.

3. E. T. Admitted July 12, 1913, age 35, occupation cab driver, admitted syphilis but date unknown, onset of psychosis about one year previous to date of admission.

Physical Status.—Anæmic and poorly nourished; pupils equal and stationary; tremors of facial muscles and extended fingers; slurring speech; ataxic gait, and marked Romberg.

Mental Status.—Memory impaired and clouded; slight euphoria; excitable and unstable; had poor insight into his condition.

This patient received seven complete treatments with salvarsan and neosalvarsan. The cell content of the cerebro-spinal fluid was reduced from 114 to 5.1 cells per cm. The Wassermann reaction with the blood and cerebro-spinal fluid ranged from two plus to four plus, the last, taken seven months and eight days after last treatment, was four plus.

He did not at any time show signs of improvement in his mental or physical condition. He died with exhaustion from convulsions 10 months after last treatment.

4. M. G. Juvenile paresis. Admitted May 24, 1913, age 19, occupation housework, onset of psychosis about one month previous to date of admission.

Physical Status.—Well nourished; pupils stationary and irregular; tremors of tongue and extended fingers; marked Romberg; exaggerated reflexes.

Mental Status.—Emotional, elated, silly demeanor; euphoric; made irrelevant replies to questions and has no insight into her condition.

This patient received four complete treatments with salvarsan. The cell content of the cerebro-spinal fluid was reduced from 37 to 17.1 cells per cm. The Wassermann reaction with the blood and spinal fluid remained positive throughout the course of treatment. The globulin content remained above normal.

There was some improvement in the patient physically, but no change was noted in her mental condition. She is very much demented. Over 13 months have elapsed since last treatment.

5. L. W. Admitted January 19, 1914, age 50, occupation housewife, denied syphilis, onset of psychosis 10 months previous to date of admission.

Physical Status.—Fairly well nourished; pupils equal and stationary; tremors of facial muscles and extended fingers; slurring speech; ataxic gait, and marked Romberg.

Mental Status.—Memory impaired for recent events; exalted, euphoric, marked grandiose ideas; sensorium keen; had no insight into her condition.

This patient received five complete treatments with salvarsan and neosalvarsan. The cell content of the cerebro-spinal fluid was reduced from 52 to 6.1 cells per cm. The Wassermann reaction with the blood remained positive throughout the course of treatment, but with the cerebro-spinal fluid it was reduced to negative after three treatments. The globulin content remained above normal. There was slight improvement in her mental condition two months after the last treatment was given and there was some improvement in her physical condition immediately following the treatment.

She was taken home by her friends on September 30, 1914, and was readmitted April 24, 1915. When readmitted she was in an excited and violent state. The Wassermann reaction with the blood and spinal fluid was four plus.

6. F. H. First admission, March 31, 1910; second admission, March 27, 1911; and third admission September 18, 1911, age 47; occupation, paper broker; admitted syphilis, but date unknown; onset of psychosis, one and one-half months previous to date of admission.

Physical Status.—Very poorly nourished; is quite feeble and spends most of his time in bed; control of sphincters lost; pupils stationary and unequal; slurring speech; tremors of facial muscles and extended fingers.

Mental Status.—Memory very poor; disoriented for time and place; euphoric; had grandiose ideas, and had no insight into his condition.

This patient received five treatments with salvarsan and neosalvarsan. The first and third were given intracranially and the others were given intraspinously.

The Wassermann reaction with the blood and cerebro-spinal fluid was reduced to negative, but the blood serum later gave a positive reaction. The globulin content of the spinal fluid remained above normal.

After the first two treatments he was able to be up and about the wards and out in the yard; control of sphincters returned, and the gained considerably in weight. He became very much brighter and was able to recognize the various physicians and attendants. His insight into his condition did not improve.

He remained in this condition for 10 months, then developed convulsions and died three days later.

7. A. D. Admitted February 18, 1914, age 48; occupation, laborer; denied syphilis; onset of psychosis, six months previous to date of admission.

Physical Status.—Nutrition fair; pupils irregular and stationary; tremors of tongue and facial muscles; slurring speech; ataxic gait, and marked Romburg.

Mental Status.—Memory impaired; ideation blunted, incoherent and unstable; no euphoria or grandiose ideas.

This patient received five complete treatments with salvarsan. The cell content of the cerebro-spinal fluid was reduced from 80.1 to 29.2 cells per cm. The Wassermann reaction remained positive throughout the course of treatment and the globulin content of the spinal fluid remained above normal.

After three treatments it became necessary to confine him to bed because of progressive weakness. He died with convulsions three weeks after last treatment.

Autopsy revealed an extensive curdy degeneration of the basil ganglia, which extended into the subcortical white substance. The caudate and lenticular nuclei were entirely destroyed and there remained only a small part of the optic thalmi. There was an extensive endarteritis of all the cerebral vessels.

8. E. M. Admitted February 24, 1914, age 28; occupation, photographer; admitted syphilis; onset of psychosis, about two months previous to date of admission.

Physical Status.—Very poorly nourished; pupils equal and stationary; very slight tremors of facial muscles; exaggerated reflexes; slurring speech, and marked Romberg.

Mental Status.—Memory impaired for past and recent events; marked exaltation and euphoria; grandiose ideas; very noisy, and had no insight into his condition.

This patient received three complete treatments with salvarsan. The cell content of the cerebro-spinal fluid was reduced from 40 to 10 cells per cm. The Wassermann reaction with the blood and cerebro-spinal fluid remained positive throughout and the globulin content of the latter remained above normal.

Four months after the last treatment he began to show considerable improvement in his condition. He became quiet and rational and was able to do considerable work around the ward. He was able to carry on a coherent conversation and had a good insight into his previous condition. Memory improved. He was discharged five months after the last treatment was given.

9. C. A. Admitted November 13, 1913, age 40; occupation, laborer; syphilis denied; onset of psychosis, some weeks previous to date of admission.

Physical Status.—Fairly well nourished; pupils stationary and equal; tremors of facial muscles and tongue; slurring speech; marked Romberg, and ataxic gait.

Mental Status.—Memory impaired; was dull, stupid, unstable and depressed; sensorium blunted, and had no insight into his condition.

This patient received five complete treatments with salvarsan. The cell content of the cerebro-spinal fluid was reduced from 113 to eight cells per cm. The last Wassermann reaction with the blood was negative. The cerebro-spinal fluid gave a positive Wassermann reaction throughout the course of treatment.

He gradually became weaker, developed convulsions and died one week after last treatment. Permission for autopsy not granted.

10. J. B. Admitted May 21, 1913, age 43; occupation, machinist; chancre 12 years ago; onset of psychosis, six weeks previous to date of admission.

Physical Status.—Fairly well nourished; pupils unequal and react sluggishly; tremors of tongue, facial muscles and hands; slurring speech, and marked Romberg.

Mental Status.—Memory good; marked euphoria; expansive and grandiose ideas; had fair insight into his condition.

This patient received eight complete treatments with salvarsan and neosalvarsan. The cell content of the spinal fluid was reduced from 56 to 12.2 cells per cm. The Wassermann reaction with the blood serum remained positive throughout the course of treatment, but was reduced to negative with the cerebro-spinal fluid, which became positive later. The globulin content remained above normal.

After three treatments his euphoria and grandiose ideas disappeared. He gained a few pounds in weight and assumed a more healthy color. He became anxious to continue treatment, so he could " get well and go home." Was able to do work which required considerable skill. Tremors of muscles improved somewhat.

Nine months have elapsed since last treatment and he is regressing very slowly, both mentally and physically.

11. F. C. Admitted March 26, 1914, age 27; occupation, bartender; chancre 10 years ago; onset of psychosis, five days (?) previous to date of admission.

Physical Status.—Nutrition fair; pupils unequal and stationary; tremors of tongue, facial muscles and extended fingers; reflexes exaggerated, and marked Romberg.

Mental Status.—Memory impaired; was excited and profane; sensorium keen; conversation, incoherent; marked euphoria and grandiose ideas; had no insight into his condition.

This patient received three complete treatments with salvarsan. The cell content of the cerebro-spinal fluid was reduced from 80.1 to 13.1 cells per cm. The Wassermann reaction with the blood and cerebro-spinal fluid remained positive and the globulin content of the latter remained above normal.

Immediately following the treatment he became quite quiet and had a fair insight into his condition, but one week after last treatment he became very excited and destructive, so that it became necessary to place him on a violent ward, where he remained until taken to a private sanatorium, December 15, 1914.

His nutrition was greatly improved and his mental condition was the same as when admitted.

12. R. C. Admitted July 12, 1913, age 35; occupation, police officer; chancre nine years ago; onset of psychosis, eight weeks previous to date ot admission.

Physical Status.—Nutrition fair; pupils equal and react to distance, but not to light; tremors of facial muscles and extended fingers; slurring speech, and ataxic gait.

Mental Status.—Memory impaired; expansive and grandiose ideas; impulsive, restless and hypochondriacal delusions; had no insight into his condition.

This patient received seven complete treatments with salvarsan and neosalvarsan. The cell content of the cerebro-spinal fluid was reduced from 36.2 to 10 cells per cm. The Wassermann reaction with the blood and the cerebro-spinal fluid shifted between negative and four plus. The globulin content of the latter remained above normal.

There has been no improvement in his mental condition; he is irritable at times, but spends the greater part of his time sitting about the ward and talking and laughing to himself. He has no insight into his condition.

He has put on considerable weight and has a very healthy appearance.

13. C. K. Admitted June 12, 1914, age 45; occupation, broker; chancer 14 years ago; onset of psychosis, about one week previous to date of admission.

Physical Status.—Poorly nourished; pupils stationary; slurring speech; tremors of tongue; ataxic gait, and marked Romberg.

Mental Status.—Excited and violent; exalted; memory poor; had hallucinations, illusions and delusions; claimed he represented Deity.

This patient received six complete treatments with salvarsan and neosalvarsan. The cell content of cerebro-spinal fluid was quite irregular. The Wassermann reaction with the blood remained positive throughout the course of treatment, and with the cerebro-spinal fluid it changed from two plus to four plus. The globulin content remained above normal.

He gained 25 pounds in weight, but there has been no change in his mental condition. He has delusions and hallucinations and is very tremulous. He has no insight into his condition.

14. J. W. Admitted May 25, 1914, age 33; occupation, car inspector; chancer 15 years ago; onset of psychosis, five months previous to date of admission.

Physical Status.—Very anæmic and poorly nourished; pupils equal and react readily; very marked tremors of tongue, facial muscles and extended fingers; speech very slurring, making it difficult to understand him; gait is very ataxic and he could scarcely walk without assistance; exaggerated reflexes.

Mental Status.—Memory quite good; marked euphoria and ideas bordering on the grandiose type; had some insight into his condition.

This patient received five treatments with salvarsan and bichloride of mercury. The cell content of the cerebro-spinal fluid was reduced from 89.2 to six cells per cm. The Wassermann reaction with the blood and cerebro-spinal fluid remained positive throughout the course of treatment. The globulin content remained above normal.

TREATMENTS AND BIO-CHEMICAL FINDINGS.

1. F. R.

Date.	W. R. Blood.	C.-Spinal Fluid. W. R.	C.-Spinal Fluid. Glob.	C.-Spinal Fluid. Cells.	Medicinal Agent.	Intravenous Dose.	Intraspinous Treatment. Amt.	Intraspinous Treatment. Serum.
						gm.	*cc.*	%
Dec. 4, '13.	++++	++++	+	40	Neosalvarsan.	.45	30	40
Dec. 17, '13.	++++	++++	....	....	"	.45	30	40
Dec. 29, '13.	++++	++++	+	35	"	.45	30	40
Jan. 15, '14.	+++	++++	....	....	"	.45	30	40
Jan. 29, '14.	++++	++++	+	14.2	"	.9	30	40
Feb. 18, '14.	++++	++++	+	3.2	"	.9	40	50
Mar. 9, '14.	++++	++++	+	28.2	"	.45	30	40
Mar. 18, '14.	++++	++++	+	13	"	.45	30	40
Apr. 1, '14.	++++	++++	+	52	"	.9	30	40
Apr. 30, '14.	++++	......	....	....	....	....	....	....
May 20, '14.	++	......	....	....	....	....	....	....
Oct. 21, '14.	+++	......	....	....	....	....	....	....
Dec. 28, '14.	—	++++	Blood	cells.	....	....	....	....

2. E. K.

Dec. 4, '13.	++++	++++	+	39	Neosalvarsan.	.45	30	40
Dec. 17, '13.	++++	++++	....	....	"	.45	30	40
Jan. 1, '14.	++++	++++	+	30	"	.45	30	40
Jan. 15, '14.	++++	++++	+	31	"	.45	30	40
Jan. 29, '14.	++++	++++	+	42	"	.9	30	40
Feb. 8, '14.	++++	++++	+	7	"	.9	40	50
Mar. 9, '14.	++++	......	....	....	....	....	....	....
Mar. 16, '14.	......	++++	+	11.1	....	....	....	....
Apr. 20, '14.	++++	++++	+	15	....	....	....	....
July, 4, '14.	++++	......	....	....	....	....	....	....

3. J. T.

Jan. 15, '14.	++	++++	+	114	Neosalvarsan.	.45	30	40
Jan. 29, '14.	++	++++	+	60	"	.45	30	40
Feb. 12, '14.	++	++	+	50	"	.45	30	40
Mar. 4, '14.	++++	+++	+	10	"	.45	30	40
Mar. 18, '14.	+++	......	Blood	cells.	"	.45	30	40
Apr. 1, '14.	++++	+++	+	17	"	.9	40	50
May 20, '14.	++++	++++	+	16	"	.9	40	50
Dec. 28, '14.	++++	++++	+	5.1	....	....	....	....

4. M. G.

Jan. 26, '14.	++++	++++	+	37	Neosalvarsan.	.45	30	40
Feb. 6, '14.	++++	++++	+	28.2	"	.45	30	40
Mar. 7, '14.	++++	++++	+	7.2	"	.45	30	40
Mar. 21, '14.	++++	++++	Blood	cells.	"	.45	30	40
Dec. 28, '14.	++++	++++	+	17.1	....	....	....	....

5. L. W.

Date.	W. R. Blood.	C.-Spinal Fluid.			Medicinal Agent.	Intravenous Dose.	Intraspinous Treatment.	
		W. R.	Glob.	Cells.			Amt.	Serum.
						gm.	*cc.*	%
Feb. 6, '14.	++++	++++	+	52	Neosalvarsan.	.45	40	50
Mar. 7, '14.	++++	++++	+	18	“	.45	40	50
Mar. 21, '14.	++++	++	+	9	“	.45	30	40
Mar. 30, '14.	++++	—	+	5	Salvarsan.	.6	30	40
Apr. 4, '14.	++++	—	+	6.1	“	.6	30	40
Apr. 28, '14.	++++	......	....	....	....	....	....	....

6. F. H.

Feb. 24, '14.	++++	++++	Blood	cells.	Neosalvarsan.	.45	25	40
Mar. 12, '14.	++++	++++	+	9	“	.45	30	40
Mar. 27, '14.	++++	++++	....	....	“	.45	35	40
Apr. 16, '14.	......	++++	....	....	Salvarsan.	.3	40	40
June 3, '14.	—	+	....	....	“	.6	30	50
Dec. 28, '14.	++++	—	+	4	....	....	....	....

The first and third treatments were given intracranially.

7. A. D.

Mar. 4, '14.	++++	++++	+	80.1	Salvarsan.	.3	30	40
Mar. 16, '14.	++++	++++	+	19	“	.3	30	40
Apr. 1, '14.	++++	++++	+	14.2	“	.3	30	40
Apr. 20, '14.	++++	++++	+	11.2	“	.3	30	40
May 6, '14.	++++	++++	+	29.2	“	.6	30	40

8. E. M.

Mar. 4, '14.	++++	++++	+	40	Salvarsan.	.3	30	40
Mar. 16, '14.	++++	++++	+	18	“	.3	30	40
Apr. 1, '14.	++++	++++	+	10	“	.3	30	40
Apr. 20, '14.	++++	......	....	....	....	....	....	....
Aug. 31, '14.	++++	......	....	...	....	....	....	....

9. C. A.

Mar. 18, '14.	++++	++++	+	113	Salvarsan.	.3	30	40
Apr. 1, '14.	++	++++	+	98.2	“	.3	30	40
Apr 20, '14.	+++	......	....	....	....	....	....	....
May 6, '14.	+++	+++	+	61.2	Salvarsan.	.3	30	40
May 18, '14.	......	++++	+	27.1	“	.6	40	50
June 3, '14.	—	++++	+	8	“	.6	40	50

10. J. B.

Apr. 9, '14.	++++	++++	+	56	Salvarsan.	.3	30	50
Apr. 20, '14.	++++	++++	....	....	“	.6	30	40
May 6, '14.	++++	++++	+	11.2	“	.6	30	50
May 18, '14.	......	++++	+	14	“	.6	40	50
June 3, '14.	++++	++++	+	6.2	“	.6	40	50
June 17, '14.	++++	—	+	9.2	“	.6	40	50
July 13, '14.	++++	++	....	....	“	.6	40	50
July 27, '14.	++++	++++	....	....	Neosalvarsan.	.9	50	50
Oct. 21, '14.	++++	......	....	....	....	....	....	....
Dec. 28, '14.	++++	++++	+	12.2	....	....	....	....

11. F. C.

Date.	W. R. Blood.	C.-Spinal Fluid.			Medicinal Agent.	Intravenous Dose.	Intraspinous Treatment.	
		W. R.	Glob.	Cells.			Amt.	Serum.
						gm.	*cc.*	%
June 3, '14.	++++	++++	+	80.1	Salvarsan.	.6	30	40
June 17, '14.	++++	++++	+	13.1	"	.6	30	40
July 10, '14.	++++	++++	+	12	"	.6	30	40

12. R. C.

July 1, '14.	++++	—	+	36.2	Neosalvarsan.	.9	30	40
July 13, '14.	+	—	+	24.2	Salvarsan.	.6	30	40
July 27, '14.	......	......	+	11.1	"	.6	30	40
Dec. 28, '14.	++++	++++	+	15.1	....	....	....	....
Mar. 17, '15.	......	++++	+	10.1	Salvarsan.	.6	35	40
Mar. 30, '15.	++++	++++	+	9.2	"	.6	35	50
Apr. 12, '15.	......	......	+	10	"	.6	35	50
Apr. 28, '15.	......	......	Blood	cells.	"	.6	35	50

13. C. K.

July 13, '14.	++++	++	Blood	cells.	Neosalvarsan.	.9	30	40
July 27, '14.	++++	++	+	16	"	.9	30	40
Oct. 31, '14.	++++	......	....	....	....	....	....	....
Dec. 28, '14.	++++	++++	+	32	....	....	....	....
Mar. 17, '15.	......	++++	+	11.2	Salvarsan.	.6	35	40
Mar. 30, '15.	++++	++++	Biood	cells.	"	.6	35	50
Apr. 12, '15.	++++	—	+	27.2	"	.6	35	50
Apr. 28, '15.	......	......	+	5.2	"	.6	25	50

14. J. W.

Mar. 8, '15.	++++	++++	+	89.2	Salvarsan.	.6	40	50
Mar. 15, '15.	......	++++	+	14.1	Corrosive Sublimate.	....	*gm.* .0013	*cc.* 50
							cc.	%
Mar. 30, '15.	++++	++++	+	17.1	Salvarsan.	.6	35	50
Apr. 12, '15.	++++	++++	+	12.1	"	.6	35	50
Apr. 28, '15.	......	......	+	6	"	.6	35	50

15. F. H.

Mar. 17, '15.	++++	++++	+	49	Salvarsan.	.6	35	40
Mar. 30, '15.	++++	++++	Blood	cells.	"	.6	35	50
Apr. 12, '15.	++++	—	+	24	"	.6	35	50
Apr. 28, '15.	......	......	+	8.1	"	.6	35	50

As yet there has been no change in his mental and very little in his physical condition. He has gained two pounds in weight and he can walk somewhat better than formerly.

15. F. H. Admitted February 25, 1915, age 48; occupation, stationary engineer; denied syphilis; onset of psychosis, six months previous to date of admission.

Physical Status.—Well nourished; pupils equal, contracted and stationary; tremors of tongue, facial muscles and extended fingers; ataxic gait; slight slurring speech.

Mental Status.—Memory fairly good; somewhat exalted, grandiose ideas; oriented for time and place, and had poor insight into his condition.

This patient received four treatments with salvarsan. The cell content of the cerebro-spinal fluid was reduced from 49 to 8.1 cells per cm. The Wassermann reaction with the blood remained positive throughout the course of treatment, but it was reduced to negative with the spinal fluid. The globulin content of the latter remained above normal.

After receiving two treatments, he had 14 convulsions in six days and since that time he has been very delusional. He has lost two pounds in weight.

WASSERMANN REACTIONS FOLLOWING TREATMENTS.

In our series of cases we were unable to obtain a persistent negative Wassermann reaction, either with the blood or the cerebro-spinal fluid. Some cases would give a weakly positive or negative reaction for a short time, but they always returned to positive.

It is well known that any case of paresis may give a positive reaction one day and a negative the next. A negative reaction may even persist for two or three months without any improvement whatever in the patient's condition.

CELL CONTENT OF THE SPINAL FLUID.

Some doubt exists as to the origin of the cells found in the cerebro-spinal fluid in cases of cerebro-spinal syphilis. Some observers believe that they are derived from the fixed tissue cells, but generally now it is accepted that they come from the blood, the plasma cell being a stage in the process of degeneration of the lymphocyte.

The presence of these cells in the cerebro-spinal fluid, if they are in excess of the normal numbers, signifies an inflammatory process of some part of the meninges covering the central nervous system.

The reduction in the number of cells, following intraspinous treatments, seems to have little or no significance. A repeated lumbar puncture will in most cases reduce the cell count to normal, but there are some cases in which this procedure does not affect the cell count at all, in fact, has quite the opposite effect.

The fluctuations in the cell count, following repreated lumbar punctures, correspond very well with the course taken by them after intraspinous treatments.

In an article written by Mitchell, Darling and Newcomb are given the variations in the cell count in untreated cases. Some of their cases show a very great increase in the number of cells, while others show a steady decrease. We have never been able to obtain so great a variation in our cases, but the changes which may take place from time to time are demonstrated very well.

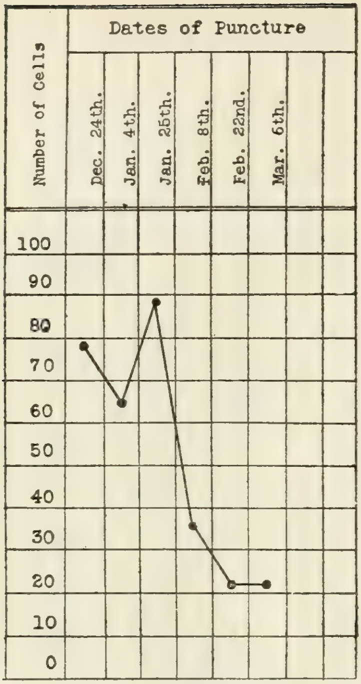
The following charts illustrate the changes which we have observed in the cell content of the cerebro-spinal fluid of some of our patients after repeated lumbar punctures and intraspinous treatments.

NUTRITIONAL CHANGES.

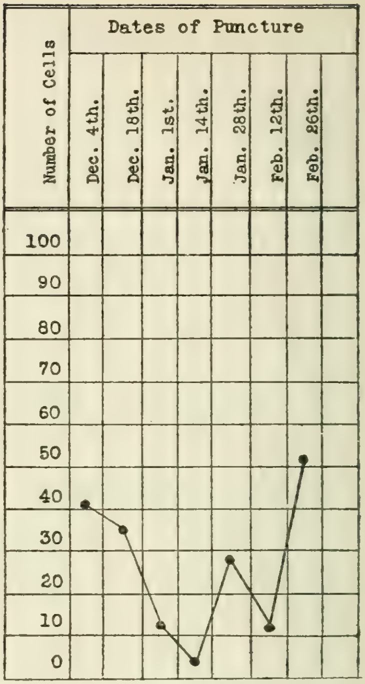
The improvement in nutrition, which is observed in so many cases, can be readily attributed to the tonic effect of the arsenic. It is reported by Wechselmann that cases treated with salvarsan invaribly show this improvement independent of any change in the course of the disease.

THE DISTRIBUTION OF THE SALVARSANIZED SERUM OVER THE SURFACE OF THE BRAIN.

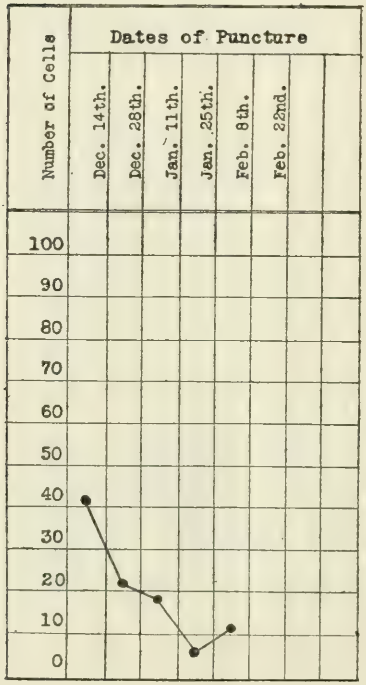
There is very little doubt about the salvarsanized serum reaching the convexities of the hemispheres, when administered by the intraspinous route. When the serum is introduced beneath the cerebral dura or directly into the lateral ventricles it immediately reaches the place for which it is intended, but it is a long and diffi-



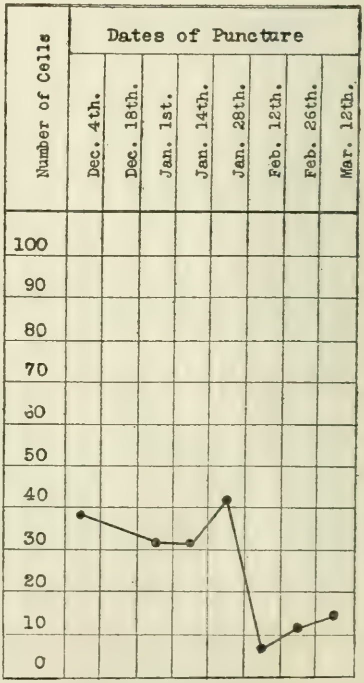
UNTREATED CASE NO. I.



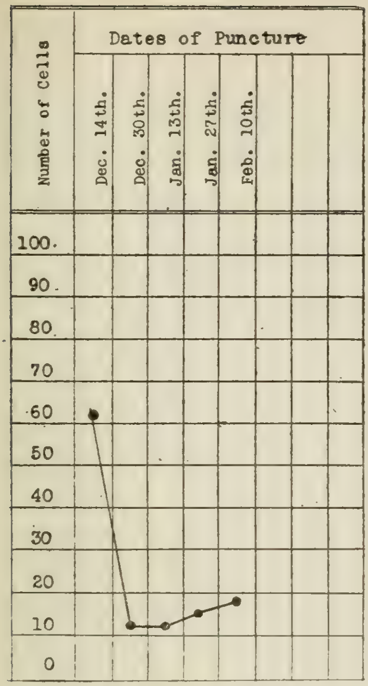
TREATED CASE NO. I.



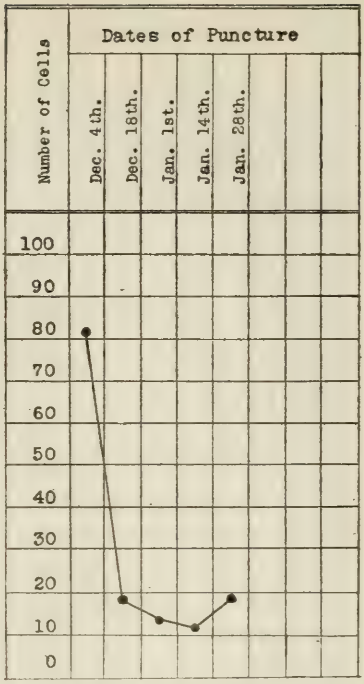
UNTREATED CASE NO. 2.



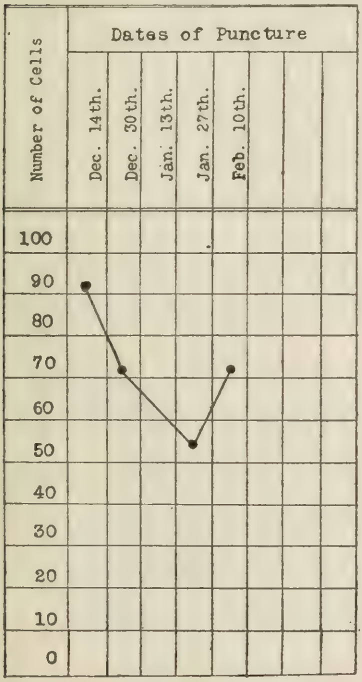
TREATED CASE NO. 2.



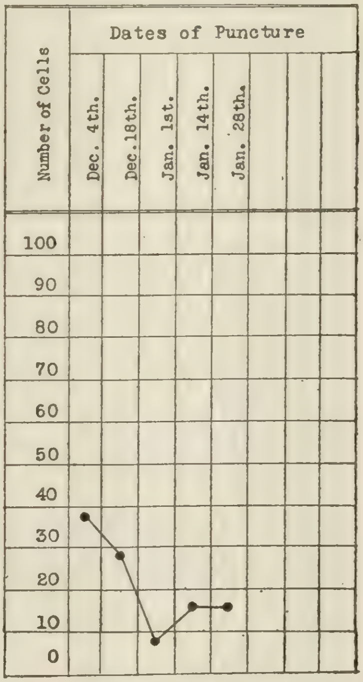
UNTREATED CASE NO. 3.



TREATED CASE NO. 3.



UNTREATED CASE NO. 4.



TREATED CASE NO. 4.

cult operation when compared with the intraspinous method, and does not seem to have any advantages over the latter, which will give the same results if a little pressure is exerted when giving the injections.

The investigations of Weed make this point quite clear. He demonstrated that when ferrocyanide solutions are injected into the spinal arachnoid cavity and continued for one hour under a pressure slightly above normal (120 to 180 mm. of water), the granules are found in the basilar cisternæ, but very few are found over the convexities of the hemispheres. The same results are obtained by withdrawing the cerebro-spinal fluid and injecting an equal amount of ferrocyanide solution. If the injections are continued for several hours the granules are equally distributed over the entire cerebral subarachnoid space, and 10 cubic centimeters injected under pressure will give the same results. Therefore, when an intraspinous treatment of 30 to 40 cubic centimeters is given under moderate pressure, there is little doubt as to its reaching the convexities of the hemispheres.

EFFICIENCY OF THE TREATMENT.

The great imperfection of this method seems to lie in the small quantity of salvarsan given and in the long intervals that must elapse between its administrations. A larger dose of salvarsan is too irritating and cannot be borne by the patient, and if the treatments are given at shorter intervals one is simply withdrawing a part of the serum last injected, because it takes nearly two weeks for the serum to be absorbed from the spinal arachnoid space.

The spirochætes that survive the first dose have an opportunity to multiply and continue their work of destruction before the next treatment can be given.

A patient with a very small lesion in the brain at the beginning of a series of treatments will have a much larger one before the invading organisms are finally killed off.

SUMMARY AND CONCLUSIONS.

The largest number of intraspinous treatments given to one individual was 10 and the smallest number three.

Three of these patients showed mental and physical improvement; five showed physical improvement only; two died during the course of treatment; two died 10 and 13 months, respectively, after treatments were discontinued; the remainder showed no improvement whatever.

Of the three who showed mental and physical improvement one was discharged and still remains in good physical and mental condition, having "returned to work and received a substantial raise in salary," over 14 months having elapsed since last treatment. One showed the first signs of improvement three months after receiving last treatment. He was taken home by his friends and we have lost track of him. The third died with convulsions 10 months after treatment.

The number of treatments which we have given to each patient was insufficient to reduce the intensity of the Wassermann reaction either with the blood or the cerebro-spinal fluid. The negative reactions we have obtained may be seen in almost any case of untreated paresis.

The number of cells in the cerebro-spinal fluid change with each lumbar puncture independent of any medicinal agent. It is generally reduced to a greater or less extent, but in some instances it may be increased and the changes in the number of cells, following intraspinous treatments, are the same as those following lumbar puncture without treatment.

The improvements which we have observed following our treatments may be seen among the same number of paretics who have received no special treatment.

The number of treatments we have given are insufficient to control the course of the disease in patients who are as far advanced as they usually are when admitted to institutions for the insane.

We believe that the amount of salvarsan which can be introduced safely into the central nervous system is too small, and the intervals are too long between the treatments, to be of any great value in moderately advanced cases.

The intracranial method seems to be unnecessary. The same results can be obtained with the intraspinous method.

BIBLIOGRAPHY.

Swift and Ellis: The Effect of Intraspinous Injections of Salvarsan and Neosalvarsan in Monkeys. *Idem.*, p. 428.

Swift and Ellis: The Treatment of Syphilitic Affections of the Central Nervous System with Special Reference to the Use of Intraspinous Injections. Arch. Int. Med., September, 1913, Vol. 12, p. 331.

Myerson: Progress in the Treatment of Paresis by Salvarsanized Serum. Boston Med. and Surg. Jour., September 18, 1913.

Robertson: General Paralysis of the Insane. Jour. Mental Science, Vol. LIX, April, 1913.

Hough: Intraspinous Injections of Salvarsanized Serum in the Treatment of Syphilis of the Nervous System, Including Tabes and Paresis. Jour. Am. Med. Assn., January 17, 1914.

McCaskey: The Autosalvarsanized Treatment of Syphilis of the Central Nervous System. *Idem.*, p. 187.

Ayer: Salvarsanized Serum in Syphilitic Diseases of the Central Nervous System. Boston Med. and Surg. Jour., March 26, 1914.

Results of the Swift and Ellis Intradural Method of Treatment in General Paralysis, by A. Myerson, M. D., Taunton. Boston Med. and Surg. Jour., May 9, 1914.

Intraspinous Treatment of General Paralysis (Swift and Ellis), by Edward Mapother, M. D., and Thomas Beaton, M. D. The Lancet, April 18, 1914.

Variations in the Strength of the Wassermann Reaction in Untreated Syphilitic Infections. Charles F. Craig, Capt., U. S. A. Jour. Am. Med. Assn.

The Clinical Value of the Wassermann Reaction. Abner Post, Boston Med. and Surg. Jour., November 27, 1913.

Observation upon Spinal Fluid Cell Counts in Untreated Cases of Cerebro-Spinal Syphilis, by Mitchell, Darling and Newcomb. Jour. Nerv. and Ment. Diseases, November, 1914, Vol. XLI, p. 686.

Revue Neurologique, March 15, 1914, pp. 337 *et seq.*

Congress de psychiatrie et de neurologie, November, 1913.

Charles A. Balance: A Method by Which Remedial Agents May Be Mingled with the Cerebral Cerebro-Spinal Fluid. The Lancet, May 30, 1914.

THE INTRA-CRANIAL INJECTION OF SALVARSANIZED SERUM.*

By DREW M. WARDNER, M. D.,
Essex County Hospital, Cedar Grove, N. J.

Laying aside as foreign to the purposes of this paper any consideration of well-known past or present methods of treating general paresis, I will proceed at once to the presentation of the subdural injection of salvarsanized serum in the treatment of this condition. The first suggestion as to the possible efficacy of treating general paresis sub-durally with some form of salvarsanized serum seems to have come from Levaditi and Martel of Paris, in December, 1913. Later on, in the *Bulletin de la Société de Médicine Mentale,* they describe their technic of the method, and report the results of treatment in ten cases. Their procedure is to salvarsanize a rabbit *in vitro,* and after bleeding to inject 5 cc. of the serum obtained through a trephine hole bored in the anterior temporal region of the skull. They claim marked improvement, both mental and physical, in all ten cases and signify their intention of continuing the treatment.

Although we owe our inspiration to their suggestion our technique differs widely. In a paper presented before this society at its Baltimore meeting last year we discussed the rationale of the subdural method and our reason for undertaking it; this including necessarily the results of other methods, such as intraspinous, intraventricular, etc., so it is not necessary to go into these again here. A brief résumé of the technic of our method is, however, in order.

On the day previous to operation the patient is given a full dose of salvarsan intravenously. The blood drawn from the patient's arm is prepared according to the well-known Swift and Ellis procedure. At operation the patient is given an ether anesthetic, a small skin flap is turned back in the anterior temporal region well above the ear and a trephine hole about 1 cm. in diameter bored in the skull by means of a Hudson drill. A lumbar puncture is then made and about 30 to 40 cc. of spinal fluid withdrawn. A bent salvarsan needle is then carefully pushed through the dura and 40 to 50 cc. of the serum allowed to flow in by gravity. After two weeks the procedure is repeated upon the opposite side. Subsequent applications are made at intervals of two weeks, the same trephine hole being used for the injection of the fluid.

---

* Read at the seventy-first annual meeting of the American Medico-Psychological Association, Old Point Comfort, Va., May 11-14, 1915.

A year ago we were able to make a preliminary report upon six cases treated in this way. At the present writing the series has been increased to 14, each individual of which has had from four to 12 treatments.

Case I.—Age, 33; duration of disease one year. Grandiose ideas marked. Judgment defect marked. No insight. Pupillary abnormalities present. K. J. exaggerated. Blood Wassermann, 4 plus; spinal fluid Wassermann, 4 plus; cells, 82.5 per cm.; R. J., 4 plus. (Six treatments.) *Present Status:* Patient is normal mentally. Insight perfect. Has gone back to his occupation as druggist. On leaving the hospital the Wassermann reaction in the blood was minus; spinal fluid Wassermann, 2 plus; cell count, zero; R. J., 2 plus. Patient has been normal for seven months.

Case II.—Age, 45; duration of disease, 18 months. Grandiose ideas. Moderate judgment defect. Moral defect very marked. K. J. increased. Pupillary disturbances very marked. No abnormal reflexes. Coordination very poor. Blood Wassermann, 2 plus; spinal fluid Wassermann, 4 plus; cells, 10 per cm.; R. J., 4 plus. (Six treatments.) *Present Status:* Judgment good; insight good. Has gone back to his occupation as laundryman. Blood Wassermann, minus; spinal fluid Wassermann, 4 plus; cells, 3.5 per cm., R. J., 1 plus. Has been well for seven months.

Case III.—Age, 40; duration of disease, three months. Moderate elation. Marked indifference to social obligations; disoriented; no insight. Pupillary disturbances. K. J. exaggerated. Coordination poor. Blood Wassermann, minus; spinal fluid Wassermann, 3 plus; cells, 39.5 per cm.; R. J., 2 plus. (Six treatments.) *Present Status:* Normal emotional tone. Sense of responsibility good. Insight good. Has gone home and is working at his occupation as tanner. Blood Wassermann, minus; spinal fluid Wassermann, minus; cells, 1 per cm.; R. J., 2 plus. Has been well for six months.

Case IV.—Age, 33; duration of disease, two years. Had a fair remission in 1913 with impaired judgment and no insight. Second admission, April, 1914. Convulsions, stuporous; marked emaciation and muscular paresis. Blood Wassermann, 3 plus; spinal fluid Wassermann, 2 plus; cells, 83.5 per cm., R. J., 4 plus. (Six treatments.) *Present Status:* Normal mentally, robust and active. Has gone back to his former occupation as salesman for an electric company. Blood Wassermann, minus; spinal fluid Wassermann, 1 plus; cells, 2 per cm.; R. J., minus. Has been well for nine months.

Case V.—Age, 48; duration of disease, three weeks. Grandiose ideas marked. Disoriented and confused. Pupillary disturbances. Increased K. J. Coordination poor. Wassermann in blood, 4 plus; spinal fluid Wassermann, 4 plus; cells, 2.5 per cm.; R. J., 4 plus. (Six treatments.) Patient returned to normal mentality. Remained well for five months. Sudden right-sided convulsions of unknown origin. Died. *Autopsy:* Gross and microscopical changes suggesting paresis. No spirochæte found. A large cyst, apparently of long standing, found under left motor area. At time of death, blood Wassermann, 2 plus; spinal fluid Wassermann, 4 plus; cells, negative; R. J., 3 plus.

Case VI.—Age, 35; duration of disease, one year. Apparently marked dementia. Delusions of grandeur marked. Muscular paresis marked. Pupillary disturbances present. Increased K. J. Coordination very poor. Blood Wassermann, 2 plus; spinal fluid Wassermann, 4 plus; cells, 109 per cm.; R. J., 4 plus. (Seven treatments.) Patient practically normal for 11 months and was allowed home. Bad relapse after one month and was brought back to the hospital. Patient was again put under treatment and showed immediate response. After five additional treatments he is practically normal again. Blood Wassermann, 4 plus; spinal fluid Wassermann, 4 plus; cells, negative; R. J., 4 plus.

Case VII.—Age, 47; duration of disease, two years. Delusions of grandeur very marked. Marked deterioration of judgment and moral sense. Confused, noisy and emaciated. Pupillary disturbances present. Increased K. J. Blood Wassermann, 2 plus; spinal fluid Wassermann, 4 plus; cells 3.5 per cm.; R. J., 4 plus. (Four treatments.) The patient responded well to treatment and became quiet and tractable. Physical improvement was marked. Broncho-pneumonia after three months. Died. *Autopsy:* Broncho-pneumonia; gross and microscopical changes indicating paresis. At time of death, blood Wassermann, minus; spinal fluid Wassermann, 1 plus; cells, negative; R. J., 2 plus.

Case VIII.—Age, 40; duration of disease, two years. Delusions, none. Loss of memory for recent events very marked. Loss of acquired knowledge very marked. Speech defects marked. Coordination poor. Patient has has several intraspinous treatments before coming to this hospital without effect. On admission, blood Wassermann, 4 plus; spinal fluid Wassermann, 3 plus; cells, 12 per cm.; R. J., 4 plus. (Six treatments.) *Present Status:* Patient's mentality is practically normal. He is active, interested in his surroundings and has good insight into his condition. The speech defect is very much improved. Patient has parole of the grounds. Blood Wassermann, 3 plus; spinal fluid Wassermann, 1 plus; cells, 12 per cm.; R. J., 4 plus.

Case IX.—Age, 30; duration of disease, six months. Silly, talkative, disoriented and confused. Memory for recent events very poor. Has had several intraspinous treatments before admission. Blood Wassermann, minus; spinal fluid Wassermann, 4 plus; cells, 7 per cm.; R. J., 4 plus. (Five treatments.) *Present Status:* Judgment is still poor and is rather silly. Great improvement in memory for recent events. There are no further chemical or biological findings.

Case X.—Age, 47; duration of disease, three months. Moderately exalted. Marked lack of judgment and moral sense. Pupillary disturbances present. Coordination poor. Blood Wassermann, 3 plus; spinal fluid Wassermann, 4 plus; cells, 25.5 per cm.; R. J., 4 plus. (Six treatments.) *Present Status:* Memory much improved. Coordination much improved. Not much improvement in judgment or moral sense. Blood Wassermann, 3 plus; spinal fluid Wassermann, 4 plus; cells, negative.

Case XI.—Age, 53; duration of disease, two years. At time of treatment patient was bed-ridden, unable to talk or help himself in any way. Blood Wassermann, 3 plus; spinal fluid Wassermann, 4 plus; cells, 30 per cm., R. J., 4 plus. (Four treatments.) Patient became able to talk a little and to feed himself. No further change. Blood Wassermann, 3 plus; spinal fluid Wassermann, 4 plus.

Case XII.—Age, 34; duration of disease, two years. Disoriented and confused. Marked delusions of grandeur. Marked muscular paresis. Pupillary disturbances. Marked incoordination. Blood Wassermann, 4 plus; spinal fluid Wassermann, 4 plus; cells, 11 per cm.; R. J., 1 plus. (Five treatments.) *Present Status:* Fair improvement mentally and physically. Well oriented. Takes an interest in his surroundings. Blood Wassermann, 2 plus; spinal fluid Wassermann, 4 plus; cells, not taken; R. J., 1 plus.

Case XIII.—Age, 35; duration of disease, four years. Disoriented, demented and silly. Marked muscular paresis. Pupillary disturbances. Coordination poor. Speech defect marked. Wassermann, in blood, doubtful; spinal fluid Wassermann, 2 plus; cells, 5.5 per cm.; R. J., 2 plus. (Four treatments.) No improvement. No further chemical or biological findings.

Case XIV.—Age, 40; duration of disease one year. Disoriented; confused. Delusions of grandeur very marked. Coordination very poor. Speech defect marked. Pupillary disturbances present. No chemical or biological findings. (Eight treatments.) *Present Status:* Patient shows a practically normal mentality with good insight into his former condition. Coordination and speech much improved. Blood Wassermann, 3 plus; spinal fluid Wassermann, 4 plus. No further laboratory findings.

To sum up, of the 14 cases, five improved sufficiently to be able to go back to their work and to date have remained well for from seven to 11 months. At the end of 11 months, one of these cases had a bad relapse. He was immediately brought back to the hospital and (we think this a point much in favor of the efficacy of the treatment) he responded immediately to additional applications of the serum. At present he is well, mentally and physically, and has parole of the grounds. Three other well-developed cases have improved sufficiently to be put upon parole of the grounds and are doing efficient work about the hospital. Three others have shown fairly marked physical and mental improvement but cannot as yet be trusted at large. Two have died. In both of these cases, autopsies were performed and both showed, grossly and microscopically, changes suggestive of general paresis. The immediate cause of death was in one case broncho-pneumonia and in the other, who had right-sided convulsions at intervals, there was found a large cyst underlying the left motor cortex. This last case had previously shown a well-marked improvement and at the time of death was on parole. Two cases have shown no improvement.

Both mental and physical improvement has generally been observed after the second or third operation, and has followed so closely upon the treatment as to practically preclude the idea of coincidence. The maximum amount of improvement has occurred as a rule after six or seven treatments.

That the operation is not dangerous is shown by the fact that 102 have been performed without untoward results in any case. Thirty minutes suffices for the whole procedure and the anesthetic has been well borne in all our cases.

The cases treated were not selected but were taken at random from the admissions of the past two years. Every attempt has been made to exclude psychoses other than general paresis and in every case the clinical diagnoses have been supported by the laboratory findings.

Where pupillary disturbances existed no marked change has been noted after treatment. Reflexes, when previously exaggerated, show a tendency to become less so. Coordination and speech have been improved in all.

In the blood the Wassermann reaction has been rendered negative in six; reduced in intensity in four; unchanged in three, and not taken in one. In the spinal fluid the Wassermann has been rendered negative in two; reduced in six; not retaken in two; unchanged in the rest. The cell count has been reduced to below 10 per cm. in 12; not retaken in two. The Ross-Jones reaction for globulin has been made negative in one; unchanged in the remainder.

What the final outcome of these cases will be we cannot, of course, state. Our best results have occurred in those in which the manifestation of the disease process had been noticed within a comparatively short time, and in which the actual destruction of brain tissue might reasonably be supposed to be slight. We believe that if cases of general paresis could be diagnosed early and thoroughly treated much might be done to control the future progress of the condition.

A FURTHER CONTRIBUTION TO THE STUDY OF APHASIA APROPOS OF A CASE OF VERBAL AMNESIA AND ALEXIA.[1]

By ALFRED GORDON, M. D., of Philadelphia.

The anatomo-clinical case about to be described presents several important features bearing on the problem of aphasia. Wernicke's view on transcortical aphasia and Marie's conception on aphasia in general are submitted to a criticism based on the clinical as well as on the pathological data of this and other cases.

H.T., 44 years of age, laborer, presents unimportant family and personal antecedents. No history of syphilis could be elicited and Wassermann test of both serum and spinal fluid was negative. He did not use alcohol or tobacco. In December, 1914, on Christmas Eve, he remembered buying a pair of rubbers and starting home, but no more. He found himself in the Douglass Hospital. Upon examination the next day he presented some mental hebetude. Questions had to be repeated several times before he made an attempt to reply. Finally he mentioned his name and kept on repeating it at each subsequent question. No other word could be obtained from him. The same attitude was observed when the patient was asked to execute acts. When told to put out his tongue, after a long interval he simply opened his mouth. He looked surprised and apparently incapable of appreciating his surroundings. On physical examination no paralysis was present, the knee-jerks were normal, the plantar reflex was normal and pin-prick was apparently perceived by the patient. All sensations were normal all over the body and there was no astereognosis. Eye examination, made by Dr. Appleman, was entirely negative.

The patient soon improved. In two months he left the hospital and resumed his work. After working several weeks he commenced to make mistakes in his work so that his employer was obliged to dismiss him. Upon a second examination the following condition was found.

Patient has difficulty in recalling names of objects. He makes, however, great efforts, perspires freely while trying to recall names. When objects are placed before him and wrong names are given them, he does not accept them until the right name is called. His speech is normal as far as articulation is concerned; his spontaneous speech is comprehensible as far as individual words are concerned. But when he tries to ask questions and tell voluntarily about his own condition, he experiences a difficulty in finding the proper word or words. Instead he may say other words. That he realizes his errors can be seen from the dissatisfaction and impatience which he plainly shows. He promptly tries to correct himself, but does not succeed in finding the proper words. When he is reminded of the latter, he at once accepts them as correct. Very occasionally he finds the correct word, or if he is asked to repeat he does it correctly, but only when he repeats the word at once, as, at a second attempt to do it, he cannot find it in his vocabulary. Occasionally in pronouncing a word he repeats the syllables, but each syllable is pronounced correctly. The test for reading printed letters shows that he had great difficulty in making out syllables, words and letters. He cannot read well even familiar newspaper print nor can he make out well his own writing in letters written by him prior to his illness.

---

[1] Read before the Philadelphia Neurological Society, October 22, 1915.

Soon he began to complain of headache. His eyes, reexamined, were again found normal. Suddenly he developed a confusional state in which he mistook persons and objects, accused his friends of trying to do him harm, became very resistive and obstinate. After being kept in bed for a week, the confusional condition cleared up completely. An examination was made ten days later and the following was noticed.

Asked about dates or time of the year, he makes errors. When questioned about ordinary subjects he does not seem to understand at first, but promptly attempts to reply. Then he again shows the same difficulty in finding the proper words as formerly. When, however, the correct word is given, he accepts it at once. When he is asked to execute acts, he does correctly the first part, but is unable to carry out the last part of the order. In trying to carry out a complicated order, such as going first to the right and then to the left, select a certain object and place it in a certain way, the patient makes gross mistakes. When asked several questions in succession, he would sometimes answer the first one correctly but in trying to answer the second, third, etc., he would keep on repeating the reply to the first question. The abovementioned difficulty to read was still present. Now as before he realizes the mistakes he makes, as when corrected he promptly approves. It is interesting to note that in the hospital ward he was found frequently conversing with fellow patients, but according to their statements they cannot always understand him; he stops often, and vainly tries to find the proper words. This difficulty is always greater when he is being questioned.

A third and final examination was made three weeks later and the former condition was found aggravated. Simple mathematical additions are made with great difficulty. First, he cannot repeat easily the problem, and then, when understood, he adds one by one to get the result. When told to take three from five, after several attempts he finally ends with saying none is left. When told to show his right hand he raises the left, then corrects it immediately, but raises his right hand and keeps on saying this is the left. When asked to show his left foot, he raises his right hand. He seems not to comprehend questions; when told to put the left heel on the right knee, or place an object in a certain part of the room, he seems not to understand.

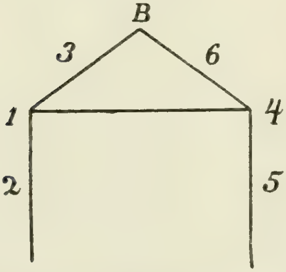
In his spontaneous conversation the sentences are muddled up; he apparently knows what he wants to say, but is unable to connect the sentence. At this time the eyes began to show changes. Pupils were unequal; right larger than left. They react to light and accomodation. In the right eye the disc edges are blurred, especially upper and lower edge, swelling +2 D. Evidences of infiltration into the retina above and below with small hemorrhages are seen. Veins are broad. In the left eye the disc edges are blurred and swollen all around. Swelling of retinal fibers extends farther into the retina than into the other edge. A week later the swellng of the right disc is +3 D. Small hemorrhages are seen over the swelling. In the left eye the swelling of the disc is +4 D. Small hemorrhages and degenerative areas are seen over its surface. Typical choked disc.

In view of these ocular findings an operation was proposed and promptly accepted. The various manifestations of sensory aphasia which were present in this case and which will be discussed later, pointed to a left-sided neoplasm. Indeed a soft and very vascular mass was found in the temporo-parietal region of the brain. In view of its consistency it could not be removed. An improvement was observed following this decompressive operation from the standpoint of his general mentality. Soon he developed a suppuration in the wound with rise of temperature. For three weeks he remained in a semi-stuporous state and finally expired.

At autopsy a large, soft, vascular tumor was seen in the left hemisphere involving the supramarginal gyrus, angular gyrus and the posterior thirds of the first and second temporal lobes and a very small portion of the occipital lobe. A transverse anter-posterior section reveals the integrity of the insula except perhaps its very posterior border which touches the tumor. The mass extends into the occipital lobe posteriorly and mesially as far as the posterior cornu of the lateral ventricle. The very posterior portion of the internal capsule and the corona radiata are involved by the tumor. The lenticular zone of Marie appears intact. It includes the square area limited anteriorly by the white substance of the third frontal convolution, posteriorly by Wernicke's area, externally by insula, internally by the wall of the third ventricle. The tumor itself is gliomatous in character. It is circumscribed, contrasting strikingly through it consistence and color with the normal tissue. Histologically a large number and densely arranged glia-cells are seen, suggesting a malignant activity. Hemorrhages are seen here and there. Necrotic areas are seen especially at the periphery. Cyst formations are multiple and in their immediate vicinity there is rarefaction of the glia-stroma.

Comment.—From the foregoing it can be seen that the mental disorder developed shortly after an apoplectiform attack. The several successive examinations revealed a speech condition which gradually became more and more profound. The most conspicuous manifestation was the difficulty and inability to recall names of objects. That he possessed full understanding of spoken sentences and of objects is evident from his disapproval or approval when wrong and correct names respectively were mentioned. There was evidently no loss of comprehension of the word meanings. The imitative speech (correct repetition of words heard) is greatly preserved here, as when his wrong definitions are corrected he repeats them, fully understanding his mistakes. During the longest period of his illness, he preserved the faculty of hearing and understanding spoken words, and only towards the last weeks of his life did he commence to lose full comprehension of heard conversation. Manifestly word-deafness developed through extension of the pathological process. The inability consequently of spontaneously recalling names of objects and of recalling the proper words for correct expression of his thoughts was the most prominent phenomenon.

Since the imitative speech is preserved, but the spontaneous speech is impaired, we deal here with verbal amnesia or amnesic aphasia. The so-called transcortical aphasia as conceived by Lichtheim and Wernicke consists of integrity of the motor and sensory speech centers and of their connections with each other and the periphery, but one or the other is cut off from the rest of the cortex. This variety of aphasia is characterized principally by the preservation of the faculty of repeating words. If we consider Wernicke's scheme—



1. Cortical sensory aphasia.
2. Subcortical sensory aphasia.
3. Transcortical sensory aphasia.
4. Cortical motor aphasia.
5. Subcortical motor aphasia.
6. Transcortical motor aphasia.

B. Center of ideation.

—one of the components of the transcortical aphasia is cut off from B, center of ideation, in the present case. As the comprehension of words is good, which is seen from the patient's approval or disapproval of words heard, the pathway from 1 to B and from B to 1 must be intact, but the path from B to 4 must be injured. It is therefore a case of motor transcortical aphasia. The imitative speech was preserved, patient could repeat words and sentences, but the spontaneous speech was impaired, as he could not voluntarily give the proper names of objects. Figuratively speaking, the stimulus from B to 1 was hindered, which corroborates the diagnosis of transcortical motor aphasia. In the later development of the disease the patient's imitative and spontaneous speech both became impaired, which, speaking figuratively, means that the paths from B to 4 and from B to 1, also from 1 to B, were simultaneously involved. In fact, transcortical sensory aphasia is, generally speaking, associated with transcortical motor aphasia. In the present case for a long time apparently only one path was involved.

The patient presented also during his entire illness a loss of faculty of reading. While formerly he was a daily reader of newspapers and could write well, he became unable to recognize his daily morning paper and his own handwriting. He could not write even on dictation. However, there was a peculiarity which deserves special mention. When a printed word was shown to the patient and he was asked to name each letter individually, he could not do it. On the other hand, when for the purpose of testing wrong letters were mentioned, he would not accept them until the right one was given. As soon as the latter was spoken, he at once repeated it by saying, "That is right." The patient consequently presented a condition which in relation to word-blindness was similar to that of his verbal amnesia in relation to word-deafness. This is the so-called "optic aphasia." As an inability to find the right word was present, not only with regard to printed or written matter, but also to objects shown and even touched and handled by the patient, we have to deal here with an optic-tactile aphasia or amnesic aphasia in general, which therefore includes the verbal amnesia discussed above. Similarly to the word-deafness which eventually developed fully, the at first incomplete word-blindness became a true alexia as the disease advanced.

There was still another peculiarity in the sensory aphasia from which the patient suffered. As the disease progressed, he became paraphasic and paragraphic. In talking there was a confusion of words, syllables and letters. He was muddled up in his attempts to repeat words or sentences. Combinations of words were decidedly incorrect and understood but partially, and with all this he was very talkative. In spontaneous writing or dictation he confused the letters exactly as he did in speech. It was actually impossible to make out any meaning whatever.

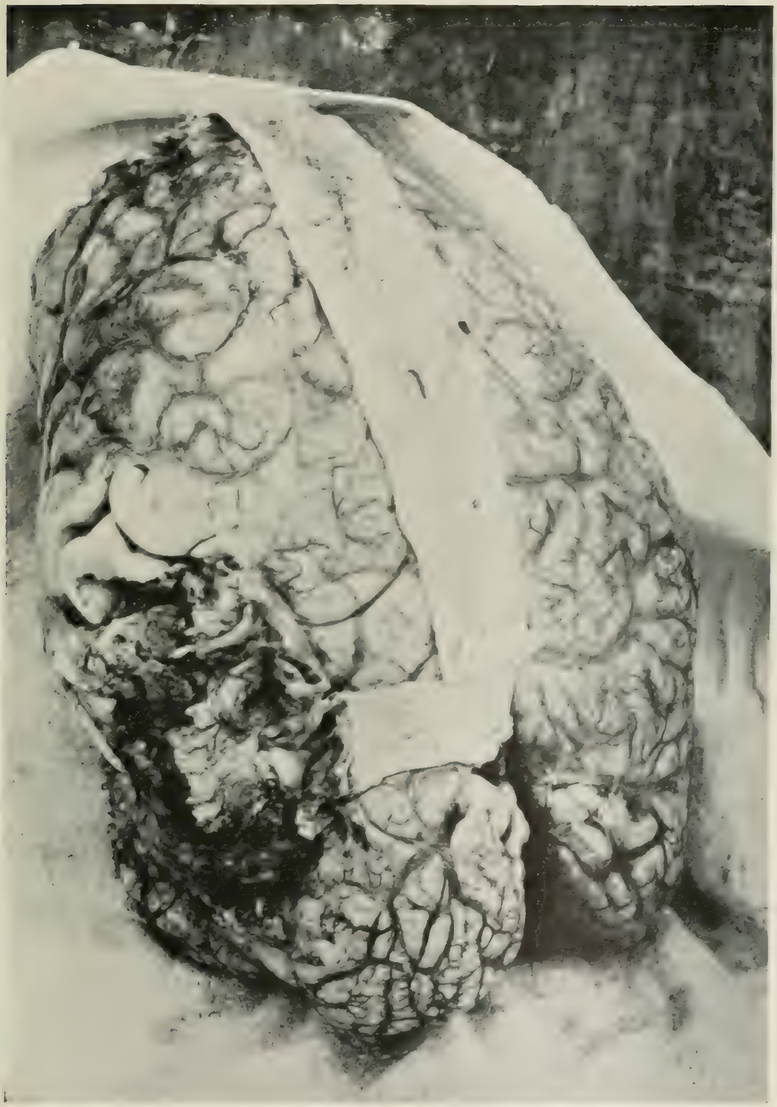
Considering the patient's speech in general, there was no motor aphasia. The utterance of words was good, there was no deterioration of the motor speech. The inner speech, as we said above, was intact. There was not the least indication of dysarthria or anarthria. The articulation was clear and distinct. The pronunciation of individual syllables and words was good.

Criticism of Transcortical Aphasia.—If in accordance with Wernicke's doctrine in transcortical aphasia the cortical centers (motor and sensory) of speech and their connections with each other and the periphery must be intact, but only the connections with the rest of the cortex, viz., the center of ideation, are interrupted, do we actually find such a state of affairs in the present anatomo-clinical case? Clinically the latter presents what Wernicke described under that name, viz., a variety of aphasia in which the imitative speech alone is preserved, but the spontaneous speech is impaired. Otherwise speaking, the patient can only repeat words and sentences which he hears, but, spontaneously, he cannot recall names of objects in order to make his speech comprehensible. But do we invariably find the anatomical substratum as stipulated by Wernicke? In the present case word-deafness existed only during the last few weeks of the patient's life. For a long time the patient could understand spoken words and could show his disapproval of wrong names applied to objects. The verbal amnesia together with alexia and optic aphasia existed without actual word-deafness. The lesion found at autopsy was very marked and consequently existed a long time. If in transcortical aphasia the speech centers are primarily intact, this was certainly not the case in the present instance. The sensory speech centers, viz., the posterior thirds of the two temporal lobes, the angular gyrus and a part of the occipital lobe were greatly invaded by a soft and vascular mass, and evidently for a very long time. Wernicke's anatomical formula, therefore, is not always in conformity with his original view, and in his schematic presentation of speech centers not only the paths between B and 4 or between 1 and B must be involved, but also the sensory center by itself may produce the variety of transcortical aphasia observed in the present case, viz., verbal amnesia. A lesion of the center for word-deafness, therefore, may also produce verbal amnesia.

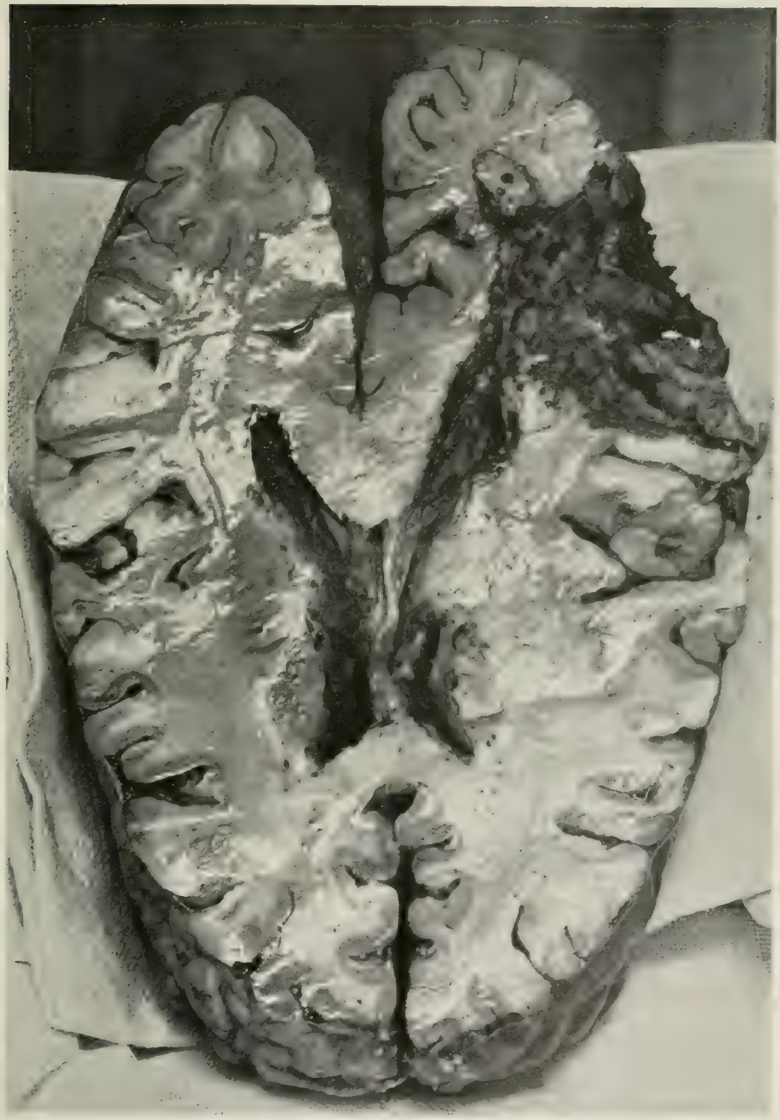
Considering the evolution of the speech symptoms in the present case, namely inability to recall names and no word-deafness for a long time, and only towards the end an inability to understand spoken words, finally, apart from the angular gyrus, if we consider the lesion limited to that part of the temporal lobe which constitutes the classical center for word-hearing, we must draw this conclusion that verbal amnesia consitutes a disorder which forms a part of a greater disorder called word-deafness. In fact, where an individual ceases to understand words spoken by others he cannot understand his own words spoken aloud, and consequently is unable to name objects. Otherwise speaking, if a person cannot name objects spontaneously and therefore is unable to express correctly his thoughts, he is affected with a deafness to his own words, self-word-deafness, so to speak. When total word-deafness develops, he is deaf not only to his own words but also to those of others. Verbal amnesia consequently may be considered as an initial symptom of the classical word-deafness. The course of the speech disturbances in my case, also the anatomical findings, speak in favor of the existence of one center for word-deafness and verbal amnesia, also of the fact that the latter is but a subvariety of the former. The creation of transcortical aphasia as a separate variety is not justified by facts such as observed in the present case. Dejerine doubts strongly the existence of transcortical aphasia. While he admits that clinically one may meet with cases presenting the picture of Wernicke's type of transcortical aphasia, nevertheless they are exceptionally rare. He, himself, in all his experience observed but one case of the motor type. In that case the patient, aged 60, intelligent and cultured, non-hemiplegic, could repeat correctly words and phrases and understand them perfectly. His case, therefore, has the same characteristic features of speech as the one reported above, viz., the imitative speech was preserved with complete understanding of words spoken and heard. Of the transcortical sensory aphasia in which the spontaneous speech is impaired, and the patient is paraphasic, and in which the patient repeats words without understanding them, Dejerine has never observed a single case. While clinically the two forms of Wernicke's aphasia are possible, their interpretation and anatomical localization are according to Dejerine quite disputable (Sémioligie des affections du Système nerveux. 1914).

The individual features discussed in this contribution have bearing not only on certain subvarieties of aphasia, but also on the much disputed questions raised by Marie with reference to the unification of the entire subject of speech disorder instead of preservation of the old division of aphasia into motor and sensory. As is well known, Marie in 1906 declared that Broca's aphasia is Wernicke's aphasia plus anarthria, that there is consequently but one aphasia, and finally, that all aphasics present invariably an intellectual deficit which may vary from a simple slowness of normal functions to a total suppression of all the faculties. Anatomically Marie considered that Broca's region may and may not be found involved in cases of aphasia, but it plays no part whatever in the function of language. The real lesion, according to Marie, is found simultaneously in Wernicke's zone and in the lenticular zone. The latter comprises the external capsule, the lenticular and caudate nuclei, the anterior and posterior segment of the internal capsule, also the optic thalami.

In two different contributions (*Archives of Internal Medicine, Dec., 1910; New York Medical Journal, Jan. 4, 1913*) I presented four clinico-anatomical records in which the subject of aphasia was discussed from the standpoint of the exclusivism assumed by the various advocates of one or the other view. The anatomical findings proved conclusively that not only the old classical localization, but also Marie's new conception and even Wernicke's area of sensory aphasia, are all deprived of their absoluteness. In addition to the pathological data of my own cases I brought forth a large number of observations of other writers all corroborated by anatomical findings. The case reported in the present contribution, apart from the instructive features detailed above, presents also valuable data for the problem of localization. We have seen that the third frontal convolution, the insula, and the lenticular zone, are all intact. Clinically the patient showed no motor aphasia and no anarthria or dysarthria. Neither could I observe a mental deficit, upon which Marie lays so much stress and which he considers as an inevitable requisite of any form of aphasia, for the patient was able to recognize his own errors as well as those of others who spoke to him for a long period of his illness until complete word-deafness and total alexia developed. The condition is,



Glioma in the Left Hemisphere Involving the Temporo-Parietal Region.



Sections Showing Extension of the Tumor, the Lenticular Zone not Involved.

therefore, typical of the old classical sensory aphasia such as conceived by Wernicke. As there was no motor aphasia, the old precise subdivision of aphasia into motor and sensory stands confirmed by the present case. On the other hand, in Case I of my series (*New York Medical Journal, loc cit.*), Broca's convolution was seriously affected and still the patient's motor speech was intact. Also Marie's lenticular zone was very seriously damaged and still there was no dysarthria. In Case II of the same series there was absence of motor and sensory aphasia, but there was anarthria. Pathologically the left Broca's convolution was intact and the lenticular zone was only partially involved. In Case III of the same series the third left frontal convolution and the insula were intact, but the left lenticular zone was destroyed. During life there was no trace of a paralytic manifestation of speech (anarthria). There was some word-blindness and partial verbal amnesia, but the angular gyrus, the supramarginal gyrus, and the posterior portions of the first two temporal convolutions, were all found intact. In the case published in the *Archives of Internal Medicine* (*loc. cit.*) the contention of the function of the lenticulostriated body as advocated by Marie could not be confirmed by the pathological findings. The destruction of the lenticular and caudate nuclei was complete, and yet the patient did not present the least indication of dysarthria. A partial word-blindness and partial verbal amnesia were present, nevertheless the angular gyrus, the insula, the temporal convolutions, and the frontal convolutions, were all found intact.

The anatomo-clinical findings of the present case run parallel with those of any of the other cases, their value is identical, and they lead to the same conclusions which were expressed in the former contributions.

First, the multiplicity of lesions ordinarily encountered in cases of aphasia is certainly striking. Second, in the various manifestations of the faculty of speech several areas of the cerebrum are involved, but not one special area. Third, neither Broca, nor Wernicke, nor Marie have solved the question of localization of aphasia, for the anatomical material in our possession tends to invalidate equally strongly the former as well as the late views on this problem. No final conclusions can be drawn in the state of our present knowledge.

A UNIQUE MURDER CASE WITH APPLICATION OF NEW LAW GOVERNING EXPERT TESTIMONY.

By JAMES W. PUTNAM, M. D., Buffalo, N. Y.

On the 31st of March, 1915, a young man was killed on the beach near Dunkirk, N. Y., under the following unusual circumstances:

The murderer, Frank Wieczorek, a Pole, about 43 years of age, having been in this country 23 years, arrived in Dunkirk on the 30th of March as a tramp and slept that night in a barn. The following morning he wandered down to the shores of Lake Erie and saw his victim, a young man, for the first time in his life. After asking him the direction to the Polish settlement in Dunkirk, which the young man indicated, raising his arm and pointing to the Polish church, the murderer, without warning, fired two shots, killing the young man, who was 18 years of age. Wieczorek then wandered on a short distance and notified some men that he had just killed a man and to send for the police. He then sat down and waited on the beach until the officers came, when he walked towards them, extended his hands and told them to put on the handcuffs, as he had killed a man. The history from that time on, as obtained by the writer, is as follows:

Some time in December, 1914, the defendant received word from an immigrant that his mother had been killed in a place of conflict in the European War somewhere near Prysmzl. At that time the thought came to him, or it came into his mind, or God told him (he used all of these expressions at different times), that if they killed his mother he ought to kill somebody. That thought was ever present with him until the morning of the 31st of March, when he said: "The time has come; I must kill someone." He left the place where he had been staying, somewhere down on the Hudson, and worked his way or tramped his way going through Buffalo to Dunkirk. From the time he claims to have received the message until the time of the killing no definite account of his wanderings was obtained. The morning of the 31st of March something in his mind told him, or God told him, that he must kill someone that day, and he started out fully determined to kill someone. He had had a loaded revolver in his possession for several weeks prior to this date.

The first person he met that morning was a young fellow of slight build whom he addressed twice "good morning," but he decided not to kill him as he was too slight, and he "wanted to kill a man and not a boy." He wandered on about 200 feet farther and met a teamster driving a load of gravel. The teamster testified later that the defendant had a revolver in his hand and acted queerly, and the teamster watched him for some distance. Referring to this teamster, the defendant said that he at first thought of killing him, but decided not to because his mind told him the teamster had too many clothes on, and the defendant did not know whether his bullet would go through the teamster's clothing, so he let him go. The defendant proceeded for about 100 feet until he met his victim and killed him in the manner already described.

The main facts as to the commission of the crime and the motive therefor were obtained from a statement given to the Dunkirk police immediately after the arrest of the defendant.

The defendant was indicted by the grand jury of Chautauqua County and arraigned at Mayville, N. Y., in June, 1915. At that time he said he wished to plead guilty; that he did not want a lawyer as it was all foolishness; that he had committed the crime. When he was informed by the court that an attorney would be assigned to him and that a plea of not guilty would be entered he said, "All right, I will plead not guilty but I did it just the same. I do not want an attorney; it is all foolishness; what is past is past."

In the jail between the time of his arraignment and the time of his trial, which occurred at Mayville, N. Y., September 20-24, 1915, he stated at various times that they killed his mother and they killed people in revolutions and that was all right; they were killing people in Europe all the time and that was all right.

To one of the physicians, when he was asked why he had done this, he said that he had heard that they electrocuted people here in this country for this, and hanged them, and cut their heads off, and he wanted to see what they would do with him. Upon being asked if he did not know that it was wrong to kill the boy, defendant replied that they kill people in his country during the war without any cause and that was not wrong; that if there were a revolution and people got killed in this country that would not be wrong, saying that he did not kill the boy, but that the Man above (meaning God) told him he must kill someone.

Defendant's attorney told the writer that he had never been able to get any assistance of any kind from the defendant in the preparation of his defense, nor would he give his attorney the slightest information about himself or the crime.

Owing to the unusual circumstances of the crime Justice Charles B. Wheeler felt that he should appoint an expert under an act which was passed by the Legislature of 1915, being chapter 295 of the Laws of 1915, which provides that the court may appoint its own expert to examine a defendant accused of crime and report to the court, and either the people or the defendant may put the court's expert upon the stand for examination, as either party may desire. Under such an appointment of the court the writer went to Mayville for the purpose of examining the defendant. Upon arriving at the jail the writer notified the defendant of his appointment by the court, and that he had come to go over the entire matter with him to assist the court in understanding the case. Thereupon the defendant said: "It is all foolishness; it will all come out in the trial. I won't say anything; I won't answer any questions"; and turned his face away. While being told that he would not be asked anything about the killing, and only about his education, his life, what he had done in this country; that I wished to get some facts that would help the court in an understanding of his case, he listened stolidly but made no reply. He refused to allow the writer to look at his tongue or his eyes or to touch his body in any way, withdrawing his hand with a jerk when the writer attempted to take his pulse.

In appearance the man was neat, about 5 feet, 8 inches in height, weighing, say, 175 pounds, strongly built, erect and seemingly above the average intelligence of a person in his station in life.

The jailer reported that during the entire time of his confinement he was extremely orderly, obedient and docile, in other words, a model prisoner; that he had practically nothing to do with other prisoners and would spend much of his time standing with his arms folded and looking off into space. His cell was always cared for by him and kept scrupulously neat, and his actions generally would seem to indicate that he had been in an institution before, although not the slightest definite information could be obtained on this point.

At the trial he took no interest whatever and gave his attorney no assistance in the selection of the jury or in any other way, and had no conversation whatever with him.

Immediately upon his appearance in court on the second morning of his trial, before taking his seat, he announced to the court he wanted it understood that the attorney assigned to defend him at the trial had no authority to represent him and had nothing to do with his case.

On the third morning of his trial his attorney told him in open court that now was his chance to take the stand to say what he had to. Thereupon he rose to his feet and addressed the court as follows: "I sit solid in this chair," and said to the counsel defending him, "I having nothing to do with you," and pointing to the district attorney continued, "this is the man for me." Upon being then asked by the court if he cared to take the stand or to make any statement he made no reply whatever, except that he would "talk no more," and that "he had told it a hundred times," and "what's done is done." He further said at different times that the trial was all foolishness, that he had told his story once to the chief of police in Dunkirk, who had taken it in writing and that he would not tell it again.

The opinion at which the writer arrived, taking his examination and the history of the case as presented in court, was that the man knew the nature of his act, namely, that he was killing a man; that he knew it was contrary to the laws of the state, because he immediately notified the people present to send for the police, and said that he had killed a man; but that he did not know the quality of the act, namely, that he was doing wrong, because he laid the responsibility upon God, who told him to kill; and the writer so reported to the court.

After the jury had been deliberating for a time they requested further instructions from the court, during which instructions the law compels the defendant to be present. Upon his being notified by the jailer that he was wanted in court he exclaimed, "Oh, Hell, ain't they through with that business yet?"

The jury rendered a verdict of acquittal on the ground of insanity and the defendant was committed to the State Institution for Insane Criminals at Matteawan, N. Y. In this verdict the defendant manifested no more interest than he had in any other stage of the proceedings.

Because of the unusual character of this crime, and the fact that the writer was appointed as the court's expert under the act above referred to, it would seem to be a matter of general interest to publish this case.

The Act of 1915 appears to be the first legislation in this state providing for the designation of official experts in cases where the issue is insanity.

Notes and Comment.

History of the Institutional Care of the Insane in the United States and Canada.—The first volume of this monumental work has just been issued from the Johns Hopkins Press, and in contents and general make-up reflects credit upon the editorial committee having it in charge and the American Medico-Psychological Association, under whose auspices it was published.

To Dr. Henry M. Hurd and his fellow workers, Drs. Drewry, Dewey, Pilgrim, Blumer and Burgess, very great credit is due for the time and labor which they have given gratuitously to the preparation of this history.

The whole work will comprise four volumes. Volume One contains a History of the Association of American Institutions for the Insane, 1844-1892; a History of the American Medico-Psychological Association, 1893-1913; a History of the American Journal of Insanity; Early and Colonial Care of the Insane; The Era of Awakening to Proper Care; a Sketch of the Work of Miss D. L. Dix; The Evolution of Care in Organized Institutions in the United States; County Care of the Insane; Care of Chronic and Incurable Insane; State Care; The Wisconsin System; The Evolution of the Administration of Hospitals; Government of Institutions; Investigation of Public Institutions; Development of Hospital Architecture; The Propositions Laid Down for Building and Management; Reforms in Caring for the Insane; Medical and Non-Medical Treatment of the Insane; Employment for the Insane; Individual Treatment; Experimental Removals; Psychopathic Hospitals; Research Work in Hospitals for the Insane; Training Schools for Nurses in Mental Hospitals; Private Care of the Insane; The Growth of the Law of Insanity; Commitment of the Insane; Conditions of Discharge; Voluntary Patients; The Care of the Criminal Insane; Immigration as a Problem in the Care of the Insane; Insanity Among the Negroes, Among the

Indians; Census of Insanity; Feeble-Minded in Institutions; Institutional Population.

Canada.—The Care of the Insane in Canada Previous to the Establishment of Provincial Institutions: Establishment of Provincial Institutions; the System of Care of the Insane in the Provinces; The Contract System in the Province of Quebec; Immigration as a Problem in Canada; Census of Insane in Canada; Laws for Commitment of the Insane in the Provinces of Canada.

Volumes Two and Three contain an account of the Care of the Insane and Feeble-Minded in the United States, together with detailed and careful histories of all the individual institutions in Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming; also in Alaska, Hawaiian Islands, the Philippines and Porto Rico.

Volume Four treats of the Care of the Insane and Feeble-Minded in Canada and gives histories of every individual institution in the provinces of Alberta, British Columbia, Manitoba, New Brunswick, Nova Scotia, Ontario, Prince Edward Island, Quebec and Saskatchewan; also in Newfoundland. The remainder of the volume contains biographies of more than 200 persons who have been engaged in work in behalf of the insane as philanthropists, hospital administrators or alienists; and an index of the whole work.

The price of the four volumes is $10, but to members of the Association they are furnished at $8.

We are somewhat painfully surprised to learn from Dr. Hurd that the number of subscribers to the work has fallen short of expectations. We cannot believe that this is due to indifference on the part of the members of the Association to an opportunity to obtain for themselves and for the libraries of the institutions with which they are connected a most valuable work. We believe on the contrary that many who have not subscribed have failed to do so from carelessness, or from forgetfulness, due to the pressure of other matters, and that when attention is called to the matter they will at once perform a duty, for we consider it such, which they have thus far neglected.

Every member of the Association should own a copy of this work, and it should be on the shelves of every institution library.

Did we not stand somewhat in awe of our editor emeritus, we would here set down our conception, inadequate though it would be, of the labor which he, Dr. Hurd, has put into these volumes, and of the debt which the Association owes to him. It would be inadequate because no one can comprehend in detail all that he has done, and because it would be necessary to write a review of the volumes which he has edited to reveal in a small degree the extent and completeness of his work.

We do not intend in any degree to underestimate the assistance rendered by his associates on the committee during the last eight years, but we know that the work of reading and revising manuscripts, reading and correcting proof, planning and arranging chapters, has been done largely by Dr. Hurd, and done as few other men in the Association could do it.

It was a very happy coincidence that the appearance from the press of the first volume was on March 25, which happened to be the fiftieth anniversary of Dr. Hurd's graduation in medicine. We are confident that all of our readers will join us in congratulating him upon thus happily rounding out a half century spent in service to his fellow men.

Several of Dr. Hurd's friends in Baltimore, including trustees of The Johns Hopkins Hospital, teachers in the medical school, former associates in the hospital, and others were invited to join him at dinner on the evening of the 25th of March. Not until the close of the dinner was the fact disclosed that the occasion was in the way of a quiet celebration among his friends of the anniversary. We wish we could reproduce the spontaneous expressions of affection for Dr. Hurd and appreciation of his work which immediately came forth from those present. The publication of the History on that day having been mentioned, one of the guests went out and procured a volume, on the fly leaf of which there was then inscribed the following, which was signed by all present, and the volume presented to Dr. Hurd:

MARYLAND CLUB, March 25, 1916.

We, assembled at a dinner to celebrate the fiftieth anniversary of Dr. Hurd's graduation in medicine and the publication of this work, of which this is the first copy, record our names in grateful remembrance and affection for the editor, colleague and friend: Henry D. Harlan, R. Brent Keyser, William A. Marburg, George K. McGaw, Blanchard Randall, George Cator, Ira Remsen, Edward N. Brush, William H. Welch, Howard A. Kelly, William Halsted, W. H. Howell, J. P. Mall, Henry J. Berkley, John J. Abel, Lewellys F. Barker, Thomas S. Cullen, William W. Russell, H. M. Thomas, Richard H. Follis, Thomas R. Brown, Thomas B. Futcher, Winford Smith, J. Hall Pleasants, Wm. Bullock Clark, Frank R. Smith.

EIGHTH ANNUAL MEETING OF THE NATIONAL COMMITTEE FOR MENTAL HYGIENE.—The eighth annual meeting of the National Committee for Mental Hygiene, held February 25 at the Hotel Biltmore, New York, was attended by a large group of alienists, social workers and philanthropists, Mr. Otto T. Bannard, the treasurer, announced that the Rockefeller Foundation had donated to the National Committee $22,800 for carrying on surveys of the care of the insane in sixteen states during the present year, supplementing gifts of Mrs. William K. Vanderbilt, Mrs. A. A. Anderson and Mr. Henry Phipps, which makes it possible for the committee to greatly extend its work.

The report of Mr. Clifford W. Beers, the secretary, showed that the movement for conserving mental health and for improving the care of the insane and feeble-minded has grown in a gratifying manner. Societies for mental hygiene are now at work in Connecticut, Illinois, New York, Massachusetts, Maryland, Pennsylvania, North Carolina, the District of Columbia, Alabama, Louisiana and California. During the present year societies will be organized in Michigan, Rhode Island, Minnesota, Indiana, South Carolina, Tennessee and Texas. The financial resources of the National Committee and state agencies have also increased, until now about twenty-five times as much is being expended on this sort of mental hygiene work as was spent in 1908, when the first society was founded.

Dr. Walter E. Fernald, superintendent of the State School for the Feeble-minded of Waverley, Massachusetts, presented a plan which had been adopted by the Sub-committee on Mental Deficiency, of which he is chairman, for popular education, extensive surveys and researches in this subject. Demands for advice regarding institutional provisions, special classes for backward children and psychological examinations in children's courts, Dr. Fernald said, had been received from all parts of the country and it was felt that this movement to deal more adequately with the problem of the feeble-minded could be greatly helped by the same kind of authoritative advice and aid which is being given on behalf of the insane. A strong appeal was made by Dr. Fernald for special funds to meet the increased demands for this kind of work. Dr. William L. Russell, medical superintendent of Bloomingdale Hospital, described how the work of the National Committee is conducted under the supervision of an Executive Committee, all experts in different fields of mental hygiene.

Dr. Thomas W. Salmon, the medical director of the committee, gave an account of the surveys of the care of the insane which had been carried on during the year in South Carolina and in Texas and announced that similar studies, each conducted by expert alienists, are under way or about to be undertaken in California, Tennessee, Missouri, Illinois, North Dakota, Indiana and in the District of Columbia. Requests for some of these surveys have come from the highest officials in the states and attention was called to the striking change of attitude on the part of those charged with the care of the insane who not only permitted but welcomed such expert studies of their facilities for dealing with mental diseases. In the course of a moving description of the sufferings of the insane confined in county almshouses, jails and poor farms, Dr. Salmon expressed the belief that the surveys which have been made possible by the appropriation of the Rockefeller Foundation will result in the complete abandonment of this type of neglect within the next few years. The steady decline in the number of persons in almshouses which has existed since 1880 is due, he said, in large part to the increasing provision in hospitals for the insane and, with the acceleration of this movement and increased provision for the feeble-minded, the end of the small town or county poor farms which dot the country-side is in sight. It was shown that 1688 such institutions, each with less than twenty-five inmates, existed in the United States all serving no useful purpose but, on the contrary, inviting the improper detention of the insane and the feeble-minded. The most encouraging feature of Dr. Salmon's report was an account of the increasing interest in securing psychopathic hospitals for all large cities in which the earliest and most efficient treatment can be provided for acute recoverable cases of mental disease. Such hospitals each with its out-patient department and psychological clinics for children exist in Boston, Baltimore and Chicago, as well as in several smaller cities, while New York is still unprovided with such an institution.

Among the members of the National Committee present at the meeting and luncheon which preceded it, were: Mrs. William K. Vanderbilt, Sr., Mr. Otto T. Bannard, Dr. L. Pierce Clark, Dr. Charles L. Dana, Mr. Horace Fletcher, Mr. William J. Hoggson, Dr. Frederick Peterson, Miss Florence M. Rhett, Dr. William B. Coley, Prof. Stephen P. Duggan, Dr. M. Allen Starr, Dr. Pearce Bailey, Dr. Henry Smith Williams, Dr. Thomas W. Salmon, and Mr. Clifford W. Beers, New York City; Dr. Lewellys F. Barker, Dr. C. Macfie Campbell, Dr. Arthur P. Herring, Baltimore; Dr. Owen Copp, Philadelphia; Dr. Charles P. Bancroft, Concord; Dr. Stewart Paton, Princeton; Dr. William A. White, Washington; Dr. William L. Russell, White Plains; Dr. G. Alder Blumer, Providence; Dr. Walter E. Fernald, Waverly, Mass.; Dr. C. S. Little, Thiells, N. Y.; Professor E. R. Johnstone, Vineland, N. J.; Mrs. M. M. Acker, Hornell, N. Y.; Mr. John Koren and Dr. Henry R. Stedman, Boston; and Dr. A. C. Rogers, Faribault, Minnesota. There were present also as guests, Mrs. Charles Dana Gibson, Mrs. Kate Douglas Wiggin, Mr. Wickliffe Rose, Mr. I. Vernon Weisbrod and Dr. George H. Kirby, New York; Mrs. Charles P. Bancroft, Concord, New Hampshire.

The following officers for the ensuing year were elected: President, Dr. Lewellys F. Barker; Vice Presidents, Dr. Charles W. Eliot, and Dr. William H. Welch; Treasurer, Otto T. Bannard; Medical Director, Dr. Thomas W. Salmon; Secretary, Clifford W. Beers; Executive Committee, Dr. August Hoch (chairman), Dr. George Blumer, Prof. Stephen P. Duggan, Dr. William Mabon, Dr. William L. Russell, and Dr. Lewellys Barker; Finance Committee, Prof. Russell H. Chittenden (chairman), Otto T. Bannard, Dr. Henry B. Favill, and William J. Hoggson; Committee on Mental Deficiency, Dr. Walter E. Fernald (chairman), Dr. L.

Pierce Clark, Prof. E. R. Johnstone, Dr. C. S. Little, Dr. A. C. Rogers.

HOSPITAL "PREPAREDNESS" IN ENGLAND.—Not the least of the many lessons taught by the European war is the importance of taking stock of the provision for sick and wounded soldiers and sailors in preparing for a sudden emergency. This feature of preparedness is brought out in striking and most interesting fashion by the address of Lieut.-Col. D. G. Thomson, M. D., President of the British Medico-Psychological Association, who, as officer-in-charge of the Norfolk War Hospital, took this year as his theme the "Conversion of a County Asylum into a War Hospital for Sick and Wounded." *

At the outbreak of the war it was thought, not unnaturally, that in a maritime nation like Great Britain there would be great naval engagements involving the landing on the North Sea coast of a vast number of sick and wounded men, whereas the naval hospitals were situated far away on the south coast. With this idea in mind, Norfolk, being the nearest point to German naval bases, offered as early as August 5, 1914, to furnish the Admiralty 100 beds and to erect tents for 150 more in the Norfolk and Norwich Hospital. This offer not having been accepted, it was transferred later to the War Office, and on October 17 the first convoy of 100 sick and wounded men arrived. In the same month occurred the battles of the Marne and Aisne, which, in view of probable requirements, suggested enquiry as to facilities for treating the wounded in asylums. Thereupon, on November 23, the Norfolk County Asylum offered 100 beds. Towards the end of January, 1915, the War Office, when the impression obtained that the Allies contemplated an advance against the enemy in spring, invoked provision for 50,000 beds, of which number the Board of Control requisitioned for 15,000 in asylums. The plan was that certain county and borough asylums near large towns should be handed over to the War Office. Dr. Thomson describes how this herculean task was accomplished and, despite his great modesty, one cannot fail to see with how great patriotism and efficiency the upheaval was met and the extraordinary service rendered. It would carry

---

* Journal of Mental Science, January, 1916.

us too far to go into the details of conversion in the 12 hospitals upon which the War Office levied. Briefly, the scheme involved the division of the whole asylum system into groups, and when one of the institutions had been selected for war purposes, its patients were distributed among the other members of the group or otherwise provided for. At first there was an unreasoning outcry of prejudice and ignorance in the press about the " outrage " of turning over the sick and wounded to " lunatic asylums," which was soon stilled, however, when the propriety and potential adequateness of the provision were appreciated. The readaptation of the buildings themselves presented no serious difficulties. Contrary to expectation, there was very little friction between the former mental nurses and the hospital-trained newcomers. The men who had been trained as asylum attendants won great praise as orderlies. The conduct of the patients was excellent on the whole, and there was no trouble as to discipline. Dr. Thomson attributes the general contentment to the ample and well-cooked food, the careful planning of occupation and amusements and the reduction to the minimum of all unnecessary restrictions on their liberty. In the discussion which followed the address, it appeared that minor changes in structural arrangements and in method have been effected such as will enure to the permanent benefit of the insane. Mention was made, for instance, of better ventilation by departing from the " asylum " type of window, of handles on the room doors, and of other like modern innovations which the converted war hospital has brought in its wake. No one can read the address without being greatly impressed with the magnificent spirit and thoroughness with which the work was carried through. Dr. Thomson pays a high tribute to Dr. Marriott Cooke and Dr. Hubert Bond, Lunacy Commissioners, but it is easy enough to read between the lines that the president of the British Medico-Psychological Association has himself been *magna pars* in the performance of a great work of reorganization. The JOURNAL salutes the Lieutenant-Colonel.

Book Reviews.

The Criminal Imbecile: An Analysis of Three Murder Cases. By Henry Hubbard Goddard, Vineland School. (*New York: The Macmillan Company, 1915.*)

The *raison d'etre* for this work of 154 pages is to present to the public a conception of the criminal imbecile, his peculiar sub-normal mentality, and the necessity of changing the present laws governing him. All these are laudable purposes, but it is questionable if the right track has here been broken to do so. No one familiar with the subject doubts that existing laws should be altered to meet new requirements; that a more general recognition of the higher grades of imbecility, together with the necessity of state care for this class, by segregation, is timely, and might have been carried to a point considerably further than is here done.

Eighty-four pages of the book are taken up with a history of the three men and their crimes. Too many unnecessary details of the murders are given, details that in the hands of a feeble-minded reader—the book being intended for popular notice may fall into such hands—are too suggestive and may serve as a stimulus to further crime. As everyone knows, the average high-imbecile is only too ready to accept suggestion.

The valuable part of the work is found in the three short chapters on the "Criminal Imbecile," "Responsibility," and "Punishment of Criminal Imbeciles." The burden of the first is to show that we are not dealing with "normal but vicious persons," but with those that are mentally defective and therefore not responsible for their crimes; also, that these persons seldom if ever attain a mental standing equal to that of a normal child of 12 years. The conclusion drawn from the second chapter is that individuals of this age (12 years) "do not know much about right and wrong." "They act upon impulses and upon instinct (especially sexual instinct) and without very much forethought." The last chapter contains the mainspring of the work. It shows that even under existing laws the imbecile murderer, by reason of his incomplete mentality, is not guilty of murder in the first degree, a doctrine which from our standpoint is debatable in some instances.

We fully agree with the author in the statement that "after all what we want is protection for society" against the criminal feeble-minded, as probably 50 per cent of all crimes are committed by the imbecile class, either for himself, or acting upon the suggestion of others, better endowed but equally criminally minded, who use him as a tool to accomplish their own ends. "The problem is not so much what is to be done with the imbecile after he has committed a crime, as the prevention of the imbecile becoming a criminal." This can only be done in large communities through the medium of the public and parochial schools, where every teacher should be required to report dullards and backward children to special examiners, who may send those requiring especial training to selected institutions, with a view to individual instruction or life-long segregation. "Examination, such as is now possible, reveals the fact that they (the children) are mental defectives, and as mental defectives are potential criminals." "Feeble-mindedness as related to crime may be exterminated in a few generations if we will use the intelligence to attack the problem at its root," a final word with which all concerned with the subject will fully agree.

H. J. B.

Text-Book on Nervous Diseases. By G. ASCHAFFENBURG; H. CURSCHMANN; R. FINKELNBURG; R. GAUPP; G. HIRSCH; FR. JAMIN; J. IBRAHIM; FEDOR KRAUSE; M. LEWANDOWSKY; H. LIEPMANN; L. R. MÜLLER; H. SCHLESINGER; S. SCHOENBORN; H. STARCK AND H. STEINERT. Authorized English Edition, Edited by CHARLES W. BURR, M. D.,Professor of Mental Diseases in the University of Pennsylvania, etc. With 156 Text Illustrations—In two volumes. (*Philadelphia: P. Blakiston's Son and Company, 1915.*)

This work has been well known to most readers of German neurological literature, and the profession are under many obligations to Dr. Burr and those who have aided him in translating the work into English. The first section of Volume I treats of General Diagnostics of Nervous Diseases and presents a very thorough and generally up-to-date account of the methods of taking a history, making an examination, and arriving at a diagnosis. One is tempted to criticise the methods described in the microscopy of the cerebro-spinal fluid, but it should be borne in mind that this work is for the use of those who by reason of their own experience can readily modify the directions given. No mention is made of Lange's colloidal gold reaction in the differential diagnosis of various forms of cerebral lues, which, however, may be accounted for by the publication in German having been made before Lange's work had been made public.

The sections following are upon Diseases of the Peripheral Nerves; Diseases of the Spinal Cord; Myopathies Without Demonstrable Changes in the Nervous System, and Diseases of the Brain. These sections comprise the first volume, and the last, Diseases of the Brain, is continued into the second volume. Of special interest to psychiatrists are the sections upon Progressive Paralysis of the Insane, by Gaupp, whose contributions to the literature of paresis are well known; upon Psychasthenic States, by G. Aschaffenburg, and upon Alcoholism, Morphinism, Cocainism, Pellagra, etc., by Quensel. A section by Dr. Burr, the editor, closes the work. This section is upon The Diagnosis and Treatment of Neurasthenia, Psychasthenia, Hysteria, and Borderland Mental States.

Beyond a brief reference in Gaupp's article by the editor to the injection of salvarsan into the veins nothing is said concerning recent intra-spinal and intra-cranial treatment of paresis. Gaupp shares apparently the general pessimistic feeling of the profession regarding the success of any method of treatment of well-established paresis. He makes, however, a strong plea for prophylaxis, by preventing the spread of venereal diseases.

The whole work is a valuable contribution to the literature of diseases of the nervous system. Like all works by several authors, it presents varying grades of excellence. Some of the writers have been too brief in their treatment of important details, while others have been prolix with unessentials. But in neither case do these faults, if they are to be considered as such, seriously detract from the value of the work. Some German idiomatic phrases have been rather badly rendered in translation, and occasionally one finds a sentence which is difficult to comprehend without repeated reading.

The volumes are attractively presented, but the use of heavily glazed paper throughout makes them unnecessarily heavy.

Man—An Adaptive Mechanism. By GEORGE W. CRILE, F. A. C. S., Professor of Surgery, School of Medicine, Western Reserve University; Visiting Surgeon to the Lakeside Hospital, Cleveland. Edited by ANNETTE AUSTIN, A. B. Price $2.50. (*New York: The Macmillan Company, 1916.*)

The following quotation from the preface of this book may be said to sum up its scope:

"For more than twenty years, the general theme treated in this volume has been under investigation in my laboratory and my clinic, and the volumes published during that time have recorded the steps by which I have approached the theories here presented.

"The accumulated experimental and clinical data are so extensive that summaries only are given in the present volume, which is an argument for the main thesis, that man is essentially an energy-transforming mechanism, obeying the laws of physics, as do other mechanisms. In presenting this thesis, certain hypotheses have been freely employed where the data were insufficient that they may furnish a working basis upon which to accumulate additional data. An hypothesis—incomplete or even false—is so easily demolished that it can do little harm; while the presentation of a 'false fact' may produce pernicious results.

"To no one are the imperfections and shortcomings of this presentation more apparent than to the author, who lays no claim to expert knowledge in any one of the several sciences involved in attempting a synthesis of such wide scope."

With such an introduction any spirit of severe criticism is dissipated, for we must judge an author by his intention as well as by his result. We believe that in the present volume Dr. Crile does not attempt more than to present in a popular and readable form the results of the researches which he and his colleagues have been carrying on for many years, and the theories which he has evolved from them.

Our readers are doubtless familiar with many of the papers in which from time to time Dr. Crile has published a part of his results of investigation and parts of the theory which is here presented more completely. As they have been favorably or unfavorably inclined towards the former papers so will they approach the volume we are discussing, with either a receptive or combative bias.

The introduction refers to the influence that Darwin's theory of evolution has had upon the sciences, but unfortunately that of medicine has been rather backward in making use of this theory because it has been so close to the everyday life of the people and hence more influenced by empiricism and superstition. It is believed, however, that we are well started on a stage of medicine which is characterized by synthesis and coordination of facts. The present volume aims to harmonize a large amount of clinical and experimental data by the application of certain biologic principles. The start was made with an investigation of surgical shock, which progressed into the field of disease phenomena, and finally came into the domain of so-called normal processes.

"One result of this research has been the accumulation of evidence tending to show that in the distribution of contact ceptors, of chemical ceptors, of the mechanisms for overcoming pyogenic infections and for blood clotting; in the distribution of pain areas and of special reflexes we have a phylogenetic summary of the evolution of man.

"It is with the desire of increasing the scope of preventive medicine; with the hope of relieving and even of curing certain acute and chronic diseases and of stimulating a biologic trend of thought in medicine to the end that disease like health may be given its evolutionary setting, that this volume is offered."

The quotations which have been made probably sufficiently indicate the character and aims of this book and the question of how well the author has succeeded can be best answered by the individual reader. Dr. Crile has certainly made out a "good brief" for his cause and probably a final decision must be left for time and an increase in our personal observation and knowledge to render us capable of accepting all that he has to say. Even should some of the theories which lead up to the principal one be proved incorrect much has been accomplished by the stimulus to thought and investigation which always follows the promulgation of views which are new to us. Undoubtedly the publication of Dr. Crile's views upon surgical shock appealed to the psychiatrist as being a much more rational view of the subject than had been met with before, because he took into account the psychic factor of fear which has been too frequently ignored by operators in the past. So too, this book will appeal strongly to the psychiatrist who will find in it much stimulus for thought and food for reflection. We may perhaps be captious and feel that statements such as "a specific such as salvarsan" are made too enthusiastically, but such criticism would be trivial in view of all the well thought out and logical presentations of the more important views.

The book is well illustrated with nearly a hundred photomicrographs, photographs and drawings and is mechanically quite up to the high standard of its publishers. W. R. D.

Games and Exercises for Mental Defectives. By Hilda A. Wrightson. With a preface by H. H. Goddard. Price $1.25. (*Cambridge, Mass.: Caustic-Claflin Co., Harvard Square, 1916.*)

As the title indicates, the book contains brief descriptions of 115 games especially adapted to train defective children in such functions as coordination, concentration, attention, spirit of play, color sense, rest, discipline, memory, observation, sense of touch, etc. These are admirably given with many suggestions as to the proper way of carrying them out so that an untrained person, such as the child's parent, can readily understand how they may be applied. Certain general rules are also given which make the use of these exercises more efficient. As might be inferred the exercises are arranged progressively so that the various functions are developed without entailing any mental or physical strain upon the child. It is a book which will prove of great value to anyone interested in improving the mental condition of defectives whether child or adult.

W. R. D.

Obituary.

DR. ALFRED IRA NOBLE.

Dr. Alfred Ira Noble was born in Fairfield, Me., March 3, 1856, and died in Detroit, Mich., on January 20, 1916.

He received the degree of A. B. from Colby College, Maine, in 1883, and M. D. from Bowdoin College in 1886. He was united in marriage with Ella Annie Boole, August 27, 1887. He engaged in the practice of medicine in Boston for one year, then became associated with the Worcester State Hospital as first assistant physician, and later as assistant superintendent. He held the latter position until 1905, when he received the appointment of medical superintendent of the Kalamazoo State Hospital at Kalamazoo, Mich., which position he held at the time of his death.

For a number of years the doctor was secretary of the New England Psychological Society. He was a fellow of the Massachusetts Medical Society and the American Medical Association, and member of the Worcester Medical Association, the American Medico-Psychological Association, the Detroit Society of Neurology and Psychiatry, the Michigan State Medical Society and the Kalamazoo Academy of Medicine.

Dr. Noble contributed from time to time to medical literature and to the general public well-prepared and exceedingly instructive essays on live medical and sociological topics. A paper on "Shorter Hours for Nurses and Attendants," published in the proceedings of the American Medico-Psychological Association, marked the beginning of an important change in hospital management. A paper on "The Curability of Insanity," read before the Detroit Society of Neurology and Psychiatry, presents some statistics most carefully collated by him personally, and demonstrates convincingly that the percentage of recoveries given by most of us is altogether too high.

During his administration at the Kalamazoo State Hospital he planned and directed the construction of Van Deusen Hospital, a receiving hospital for women equipped with modern apparatus for treatment. He also constructed a laboratory for pathological and research work. The Doctor also recognized and emphasized the value of occupation, not only as a curative measure, but as a means of education in chronic custodial cases, thereby developing them into useful members of a hospital community. Through his efforts a large industrial building is in process of construction, which, although he did not live to see completed, will stand as a monument to him in this direction. One of his last acts was the advancing of the standard of the training school for nurses, raising the requirements for admission, extending the course to three years, and requiring nine months' training in some general hospital. Dr. Noble was very conservative, yet always progressive, a man of high ideals, a gentleman, and he possessed a wealth of tact, diplomacy and genuineness that won the confidence of and made lasting friendships with the public, his patients and his associates.

His remains were taken to Boston, Mass., for interment.

DR. GEORGE HAMILTON SCHWINN.

Dr. George Hamilton Schwinn was born January 11, 1873, in Baltimore, received his preliminary education in the public schools of that city, and graduated from the Maryland College of Pharmacy in 1894. He then came to Washington and entered the Columbian University Medical School, now known as the George Washington University, graduating in 1898. Shortly thereafter, in July of that year, he was appointed Clinical Interne in the Government Hospital for the Insane under the late Dr. Godding. Gaining promotion step by step, in January, 1911, he succeeded the late Dr. Stack as first assistant, which position he held until his death.

In 1902 he married Miss Elvira Gaddess of Washington, D. C. His wife and twin sons, George Hamilton and Gordon G., born in 1904, survive him.

In the spring of 1914 Dr. Schwinn's health became much impaired. He was confined to his bed several weeks, and as soon as he was strong enough to travel he went to Saranac Lake, N. Y. where he spent the summer. The rest and treatment there greatly benefited him, and he returned to his duties at the hospital early in November buoyed up with the hopes of an ultimate cure. The following spring, however, the appearance of certain symptoms alarmed his family and friends, and in July, 1915, he went to the foot hills of the mountains near The Plains, Virginia. The summer spent there proved of little benefit, and much discouraged he felt it incumbent upon himself to return to his duties. It was now evident that his malady was firmly established. He clearly appreciated the outcome, and with never a murmur of complaint, against the advice of his friends, he endeavored to keep up with his work when it was to be seen that his health suffered in consequence. In January, 1916, his illness assumed a more acute form. He grew rapidly weaker, and with pathetic patience he awaited the inevitable end, which came February 6, 1916, in his apartments in the hospital.

Dr. Schwinn was first of all a man of the highest honor, and in this trait of character were embodied all its attributes. He was a devoted and self-sacrificing husband and father, a faithful and generous friend. Serving his entire practice of nearly eighteen years in the Government Hospital for the Insane he was the ideal type of institutional physician, ever loyal to the hospital, patient, sympathetic, gentle in speech, and noted for the deep and personal interest he took in his patients and their friends. Of these latter there came to his bier many who in sorrow told of their loss and of the deep debt of gratitude they owed to the man who ever patiently by the hour listened to their woes, adjusted their difficulties and sent them home with a sense of peace and comfort.

Dr. Schwinn was the author of the following: " Some of the Difficulties Encountered in Making a Diagnosis of Paresis," The Journal of Nervous and Mental Diseases, December 1910, XXXVII, 754-764; " Prognosis and Therapy of Cerebral Syphilis," The Journal of the American Medical Association, 1913, LX, 1852-1855 (read before the Society for Nervous and Mental Diseases of Washington, D. C. at a Symposium on Syphilis of the Central Nervous System held March 20, 1913).

Alfred Glascock, M. D.

Half-Yearly Summary.

ARKANSAS.—A survey of the feeble-minded of this state has been made by Dr. Harry T. Crane of the Eugenics Record Office at Cold Spring Harbor, N. Y., under direction of the Arkansas Commission for the Feeble-minded. A study and classification of those in the state penal and charitable institutions was first made, and this was followed by a study of those in public schools for the purpose of ascertaining how many and what percentage of children reported as backward are really feeble-minded.

CONNECTICUT.—*Hartford Retreat, Hartford.*—Out-of-door sleeping porches on the disturbed wards to accommodate 16 patients have been completed.

DELAWARE.—*Delaware State Hospital at Farnhurst.*—Ground will be broken in April for a new building to accommodate 100 female patients. The cost will be $60,000. The dimensions will be 140 by 60 feet. The ground floor will consist of large recreation rooms, while dormitories and single rooms for disturbed patients will be located on the second floor.

DISTRICT OF COLUMBIA.—A meeting of the Board of Directors of the Society for Mental Hygiene of the District of Columbia was held December 2, 1915, at which Surgeon-General Rupert Blue was elected President; Mr. Cuneo Randolph, Vice-President; Dr. D. Percy Hickling, Secretary; and Miss Nellie Sedgley, Treasurer.

A bill is now pending before Congress requiring the parent, guardian, or custodian of any child within the jurisdiction of the Juvenile Court to have such child examined by a physician if the child appears to be in need of medical care. The court may require such examination to be made and may order the child to a hospital for this purpose. A clause requiring every official of the District to render the court such assistance as is within his jurisdictional power will give the court the benefit of the services of the District Alienist for such investigations as are necessary.

Another bill provides for the voluntary admission of residents of the District into the Government Hospital for the Insane. The person making such application must be regarded as competent to appreciate such a step by the superintendent of the hospital, and detention cannot be enforced for more than three days after written notice of intention of leaving.

FLORIDA.—*Florida Hospital for the Insane, Chattahoochee.*—A pathological laboratory building with a mortuary and refrigerator is being erected at the present time.

The tuberculosis colony has been completed and is in operation in charge of an experienced tuberculosis nurse from the Maryland State Tuberculosis Colony.

Water power is being developed near-by by the erection of a concrete dam with two turbine wheels of approximately 50 horse-power each. This power will be utilized for pumping water to the center of the institution, a distance of about half a mile, where ground has been prepared for the installation of a new power plant, where it is expected to generate electricity to operate all machinery, pumps, a planing mill, saw mill, etc.

A new and modern dairy barn with accommodation for 80 cows has been erected in accordance with plans formulated by the United States Department of Agriculture.

The last legislature provided for the commitment of all drug habitues and alcoholics to this hospital, authorizing the Board of Commissioners of State Institutions to issue an order against such commitment should the institution become too crowded. There was an immediate influx of a great number of these people necessitating a restraining order from the Board of Commissioners. The hospital is admitting an occasional case as vacancies occur.

Illinois.—A municipal psychopathic clinic was opened early in November, 1915, at the Iroquois Memorial Hospital under the direction of Dr. Harold N. Moyer, head of the psychopathic division of the school sanitary inspection of the Department of Health of Chicago.

The Illinois State Hospital Medical Association met at the Elgin State Hospital on October 28 and 29, 1915, and at the Jacksonville State Hospital on February 24 and 25, 1916. At the latter the following subjects were discussed: Institutional diversions, the Wassermann reaction in the feebleminded, reeducation of the demented, treatment of paresis, arterio-sclerosis of the brain and cord, diphtheria carriers, alcoholic psychoses, and anociassociation.

—*Alton State Hospital, Alton.*—This hospital is in process of construction.

—*Elgin State Hospital, Elgin.*—The following covers in the main the activities of the institution:

1. The abolishing of all mechanical restraint and seclusion by order of the Board of Administration, affecting all charitable institutions in Illinois under its management.
2. The eight-hour day for employees, and one day off each week.
3. The abolishing of strong dress and ward bench.
4. The removal of bars from windows.
5. Installation of adequate hydrotherapy apparatus in buildings readily accessible for all classes of patients.

6. The following additions have been made in the industrial departments as diversional occupations:

The laying out of a golf course for the use of patients under instructors.

Class in clay modeling.

7. Consulting staff from the City of Elgin has been named and come out for consultation where the resident physician desires an opinion in obscure cases.

8. The following buildings have been erected recently:

New psychopathic building for men.

Nurses' home.

Green house.

The following buildings are under construction:

Boiler house.

Dining-room for acute service.

Extension of north and south dining-room of the main building.

Ward for chronic female patients.

—*Kankakee State Hospital, Kankakee.*—During the fall all of the patients and employees of this hospital, numbering about 4000, were inoculated against typhoid fever.

Indiana.—*Indiana Village for Epileptics, Newcastle.*—Two buildings for men are about ready to be opened. An appropriation is available for the construction of buildings for women, but it will probably be a year before these can be completed.

Iowa.—*State Hospital and Colony for Epileptics, "The Meadows," Woodward.*—This institution is under construction. The buildings, to be completed by September 1, are the following: Power house, service building, laundry, superintendent's residence and the hospital group, consisting of 10 pavilions connected by corridors. The hospital group comprises the following pavilions: Two receiving pavilions, clinical and laboratory building, two general hospitals, two isolation pavilions, one operating pavilion, one hydro- and electro-therapeutic pavilion, and the kitchen and dining-room building. It is not anticipated that the institution will be ready to care for patients until early next year.

Maryland.—*Crownsville State Hospital, Crownsville.*—Practically all the negro insane in the state have been transferred to this hospital, the removal of 200 from Bay View Hospital during the fall completing the transfer which has been going on since this hospital was opened.

—*Sheppard and Enoch Pratt Hospital, Towson.*—A meeting of the Interstate Psychiatric Society was held November 23, 1915, at this hospital. A constitution was adopted and the following officers were elected: President, Dr. Henry A. Cotton; Vice-President, Dr. Edward N. Brush; Secretary, Dr. Samuel T. Orton. Dr. Llewellys F. Barker addressed the society on Medicine in Psychiatry.

All bathroom units are being remade, the walls having a six-foot white marble wainscoting, the ceiling and frieze being of white enamel. The floor is of white vitrified tile and the partitions of white marble. New and modern fittings are being used, and the whole presents a very attractive appearance. Two new private bathrooms have also been installed.

During the past winter the electroliers on a number of wards have been replaced by the semi-indirect lighting system.

Since November a course of lectures on English literature has been given by a convalescent lady patient, formerly a teacher. Though originally intended as a culture course for the nurses, patients were allowed to attend, have become much interested, and form a majority of the audiences. The course has been admirably given and correlates history, music, and art with literature, and probably for this reason has proved so interesting. It has done much to stimulate an interest in reading, and the services of a number of musically inclined patients have also been enlisted to sing or play at the lectures. Others have been interested in doing some research on folk dancing, morris dancing, the music of Shakespeare's plays, Elizabethan love songs, mediæval costumes, Christmas customs, etc. A decided stimulus has been given to occupations which lead to mental improvement and at present tentative plans are being considered for a small celebration of the Shakespeare Tercentenary.

Through the special efforts of a group of patients who are interested in botany, practically all of the shrubs and trees on the hospital grounds have been labelled. A number of duplicates are allowed to remain unlabelled in order that future students may find some material to differentiate. The labels were printed at the hospital shop and, in order to make them better resistant to the weather, have been coated with paraffin. It is expected that in time these labels will be replaced with copper or zinc labels which will be made in the metal shop.

The usual occupations continue to be carried on actively, and the various classes are at present preparing for the semi-annual bazaar which will be held in May.

An active season is being planned for the baseball team and the diamond is being rolled and placed in good condition for the opening game.

MASSACHUSETTS.—*Monson State Hospital, Palmer.*—A 20 years' review of the work of this hospital is planned to be held in May. Each member of the staff will contribute, the clinical and laboratory work in progress will be reviewed, and an effort will be made to gather all those together who have contributed largely to the success of the institution.

MICHIGAN.—*Pontiac State Hospital, Pontiac.*—Dr. Udo J. Wile, of the University of Michigan made report in *The Journal of Experimental Medicine,* Vol. 23, 1916, of the successful implantation of spirochetes and the transmission of experimental syphilis to rabbits from the living paretic brain. Material for the inoculation of the rabbits was obtained by aspirating cortical substance from eight living paretics from the Pontiac State Hospital in June last. Dr. Wile now reports that this experimental syphilis has been transmitted through five generations of rabbits.

A cold storage building, 60 x 43 feet, equipped with an ammonia refrigerating apparatus has recently been placed in commission. The building contains 10 cold storage rooms, in addition to a meat cutting room. In addition to the above, refrigeration is supplied to three other rooms adjacent to the kitchen.

The boilers at the power plant have been equipped with automatic stokers. These stokers will be fed from overhead coal bunkers, which in turn are supplied with coal by a conveyor of bucket-elevator type. A coal crusher completes the equipment.

A steam ash conveyor carries the ashes from each pit to a bin outside the boiler house, from which they are dropped into a dump wagon.

Mississippi.—A movement has been started toward the establishment of a state vocational institution for the care of feeble-minded.

New Jersey.—*New Jersey State Hospital at Morris Plains.*—The new form of refectory has proven very successful and another dining-room will be constructed in the dormitory building after the same plan.

Three hypochlorite purification stations have been completed and will sterilize all the water used in the institution.

A two-story and basement extension to the industrial building has been nearly completed. The industrial building was opened October, 1914, and was equipped with apparatus and supplies for manufacturing a great many utilities. In equipping this building, special attention was given to the introduction of equipment that could be utilized in restoring the former skill of patients who have been afflicted with mental diseases that impaired their original capabilities and disorganized their normal habits of behavior. This department, which was experimental at first, has turned out to be one of the most efficacious methods of treating a large number of patients having chronic mental diseases.

On the first floor of this building is located a well-equipped print-shop and bookbindery. In the bookbindery is a modern duplex ruling machine which requires exceptional skill for operation, and has been operated by the patients successfully.

On the second floor of this building various kinds of looms have been installed for weaving rag rugs, toweling, and tapestries. Several knitting machines for the manufacture of stockings are available for the patient's use.

The willow industry has several subdivisions and can be used advantageously in grading the work which the patients are capable of doing until each patient acquires sufficient skill to perform the more complex work of this industry.

Special attention has been given to out-door amusements for the patients. During the baseball season the hospital team will play a complete schedule of games with teams from various parts of this state. A large bandstand has been constructed on the baseball grounds and every day that the team plays the band gives a concert.

In the men's department of the main building a room devoted exclusively to the giving of continuous baths has been equipped. There are six tubs, under the control of a Leonard mixing valve. These baths are in constant use and have proven very satisfactory in the treatment of excited, violent, and destructive patients.

Two additional tubs have been installed in the continuous bathroom in the women's department.

A competitive examination will be held in May to fill three vacancies in the staff.

New York.—Under the auspices of the Mental Hygiene Committee of the State Charities Aid Association, a series of lectures is being given as part of a state-wide educational movement for the prevention of insanity. Among those giving these lectures are Drs. Stewart Paton, Smith Ely Jellyffe, August Hoch, William Mabon, James V. May, and others.

The New York Police Department has established a laboratory for the purpose of examining prisoners to ascertain if they are defective. It is located at police headquarters and is in charge of Dr. Louis Bisch.

The New York City Child's Hospital and Schools on Randall's Island has received an appropriation of $600,000, which will be used to rebuild and thoroughly modernize this institution.

The eighth annual meeting of the National Committee for Mental Hygiene was held in New York City, February 2, 1916, at which it was announced that the Rockefeller Foundation had donated $22,800 for the purpose of carrying on surveys in 16 different states upon the care of the insane. Surveys have been, or are being made in South Carolina, Texas, California, Tennessee, Missouri, Illinois, Indiana, North Dakota, and the District of Columbia.

The aldermanic finance committee of Buffalo has been petitioned for an appropriation of $2000 to establish a psychopathic ward at the Buffalo Municipal Hospital.

—*Binghamton State Hospital, Binghamton.*—The new building for 300 women patients and the employees necessary to care for them, to which reference was made in the last Half-Yearly Summary, is now practically completed; it will be furnished during the coming spring and occupied in the early summer.

At the power plant a new boiler of 500 horse-power capacity was put in commission in January, and proposals are now in the hands of the State Hospital Commission for another boiler of similar size, and other improvements at the plant which will aggregate in cost $30,000. Besides these improvements, funds are available for a new coal trestle which it is expected will be erected during the coming summer.

Repairs are now being made to the general assembly hall to strengthen the rear wall which, on account of the settling of the foundation, has been regarded as unsafe for some time past. General repairs have been made to the heating system throughout the institution, and renewals of more or less importance have been made in practically every department of the hospital.

On the 9th of October, 1915, a small building used as a storehouse on the hospital farm, was destroyed by fire. The value of the building and its contents was approximately $500.

A transfer of 50 women and 25 men patients was received on October 13, 1915, from the Manhattan State Hospital in New York City, to relieve the crowded condition of the wards of that institution.

In February, 1916, Mr. Merritt J. Corbett, whose term as a manager had expired December 31, 1915, was reappointed by Governor Whitman for another term of seven years. Mr. Corbett has been a member of the Board of Managers of this hospital for the past eight years, and during the past two years has been its President.

On October 25, 1915, Miss Edith Atkin, R. N., was appointed from the Civil Service eligible list to the position of principal of the training school for nurses, to succeed Miss Laura A. Beecroft, who had temporarily filled the position from February 3, 1915, until August 3, 1915, when she resigned.

December 1, 1915, Miss Hilda P. Brodhead, a graduate of this hospital, was appointed social worker in connection with the after-care work which has been a feature of this hospital for several years past, and is now devoting her entire time to this field of activity.

—*Buffalo State Hospital, Buffalo.*—Authority for the expenditure of necessary salary having at last been obtained from the State Hospital Commission, with the approval of the Governor, an after-care agent and social worker has been appointed for this hospital. The assistance, not only in visiting patients on parole, but in investigating cases and families who come under the cognizance of the hospital in its clinic work, is very marked. It is hoped that with the thorough establishment of the health center system or zone system in this city by the Health Department, that mental hygiene work can be so incorporated with the work of the different health officers that much more thorough and effective work in mental hygiene can be done.

The percentage of crowding beyond capacity at this hospital amounts to about 26 per cent. Earnest efforts are being made to induce the legislature to provide some relief, without which the work of the state hospitals in securing recoveries must certainly be much impaired.

—*Gowanda State Homeopathic Hospital, Gowanda.*—Material was purchased and work commenced on a 24 x 90 foot addition to the carpenter shop. This building when completed will provide the necessary room for the storage of lumber, a small varnish room for the painter, a room for the fire department to keep hook and ladder trucks and hose carts (the present cement-block fire house is to be taken down during the summer and the material used to construct a milk house at the dairy barn), and the basement will be used by the mason to manufacture cement blocks, cement tile and to store his tools and supplies.

The legislature of 1915 appropriated $10,000 for the construction of a mortuary and laboratory. The State Architect is completing plans for this building, which will be constructed during the year.

A small pavilion for women tuberculous patients was completed and occupied during the year. This building has a dormitory for 20 patients, a small dining-room, serving room and a wing containing a linen room and toilet room. It was erected at a cost of $1760.

The upper half of the power house stack was removed and a new steel stack put in place.

A heat conduit was installed, connecting the residence of the superintendent and the staff house with the power house.

Three thousand and sixty feet of sewer line were installed, connecting the farm cottage with the main sewer.

A new 10 horse-power boiler has been installed at the milk house.

A " Natico " tile silo of 300 tons capacity, 18 x 48 feet, was completed and filled with ensilage this last fall.

New stalls, of the James Way type, were installed at the dairy barn.

The quarantine cottage, farm house, carriage barn and piggery have been reshingled, and many of the buildings have been repainted.

Much painting has been done on the wards, where oil paints have replaced water paints.

Extensive additions to the bakery, permitting more space, were completed during the winter. Three new sanitary bread racks and a cake mixer were installed in the bakery, thus lightening the work of the baker.

A " National " canning outfit was purchased during the year and operated very successfully during the canning season.

The hospital has earned quite a reputation for its registered Holstein stock and has supplied several of the state hospitals with registered bulls and calves, Kings Park, Middletown and Willard having profited thereby.

Out-patient departments have been opened in Welcome Hall Dispensary, Buffalo, N. Y., and in the W. C. A. Hospital at Jamestown, N. Y. These dispensaries are visited by an assistant physician one day a month. During the coming year the hospital expects to open dispensaries in the cities of Salamanca and Olean.

—*Hudson River State Hospital, Poughkeepsie.*—For a number of years the hospital has had a small but efficient local Committee of Mental Hygiene, and during the past few months efforts have been made to enlarge the scope of this work, and to that end a much larger and more influential committee has been organized with Frank B. Lown, Esq., as Chairman. Mr. Lown has an active interest in public health matters, and his long service as a member of the Board of Managers of this hospital eminently qualifies him for this important work.

Miss Nellie A. Doughty, R. N., has been appointed as Field Worker for the hospital and has had immediate charge of the Out-Patient Department and Social Work in the district.

During the winter cottages three and six, located in the eastern part of the hospital property, were entirely renovated.

The smoking and billiard room attached to the main building has had new steel ceilings, and has been repainted and generally improved.

Owing to difficulty with the foundation of the bowling alley built several years ago, it was necessary to renew the entire alley. Advantage was taken of the opportunity to increase the length to standard, and the new alleys will shortly be installed.

—*Kings Park State Hospital, Kings Park, Long Island.*—A new system of central hot water heating has been completed and is proving satisfactory.

A contract was recently let for drilling two wells, connecting these wells up in a permanent manner with the existing cistern, and also connecting in one other well. With the completion of these two wells the hospital will have 10 wells, each with a depth of approximately 500 feet. The water so far secured from the eight wells, which are now in use, is of very good quality.

There was $80,000 appropriated by the legislature, mentioned in the hospital news of last year, for additional accommodations for patients. When bids were received this amount was found insufficient, and another appropriation of $10,000 was made, or a total of $90,000.

Contracts were let for building additions to cottages one, three and four, the floor space of each floor amounted to 4060 square feet. The additions are two stories high, with basement. The basement is to have a tile floor and be equipped for dining-rooms.

Certificates were received from the American Medico-Psychological Association at Old Point Comfort in May for the following:

1. Certificate for the best braided rag rugs.
2. Certificate for best specimen of drawings.
3. Certificate for best specimen of stenciling.

In addition to the usual departmental shops, there are classes in embroidery, needle work, basketry, rug-making, stenciling, satin and paper flower work, brass work, pyrographing, etc. Lately new classes have been formed in leather work. Diversional classes are also continued and many patients enjoy daily recreation in the form of bowling, dancing, basketball, drills, calisthenic exercises, and, during the season, for the men, baseball and quoits.

Miss Lillian Reilly, a graduate of Pratt Institute, Brooklyn, has been employed to take charge of a class for women in basketry, and leather tooling for both women and men patients.

Miss Mary M. Maupin, a graduate of the Thomas Normal Training School, Detroit, Mich., has been employed to take the school for women patients, to fill the vacancy caused by the resignation of Miss Alba M. Evans, who had the school for a number of years. Miss Maupin also conducts two classes, one for men and one for women, in calisthenics and other physical exercise.

Forty-one escapes of patients are recorded as having occurred during the year. Of these, 22 were returned prior to the expiration of 30 days; five were paroled to the custody of relatives or friends and discharged after 30 days; one patient, unfortunately, committed suicide within a few days after reaching home. Ten were discharged to the custody of themselves, not having been heard from again. Fortunately, none of the latter were considered dangerous to themselves or others. The remainder will be discharged if not returned within the 30-day period.

Two patients, while in the hospital, committed suicide.

One of the employees, Karl Weiser, at considerable risk to himself, rescued a patient from the old canal.

Several employees during the performance of duty suffered accidental injuries, none of which, fortunately, were of a serious nature.

On August 7, 1915, a fire occurred in the tailor shop. This fire started in a box in the rear of the shop where condemned clothing and waste pieces from making up new clothes are kept. The fire probably was the result of spontaneous combustion or caused by a patient, who was smoking, dropping sparks into the box. The fire burned through the clapboards of the building and then ran up between the clapboards and wainscoting and in this manner gained considerable headway before it was detected. The fire department responded promptly to the alarm of fire, and the total damage to the building and institutional clothing was approximately $300.

A clinic was established jointly with the Long Island State Hospital at the Williamsburgh Hospital, Brooklyn, every Saturday, between the hours of 10 and 12. The superintendents, or one of their assistants, will be in charge. The State Charities Aid Association has been of great assistance in aiding the organization of this clinic and also in giving publicity to the same. Special effort will be made to impress upon the public the importance of bringing persons threatened with insanity to the clinic for observation and treatment. The clinic will also be used in conjunction with the New York office as a place where paroled patients will report at stated intervals. The research assistant will also attend the clinic and act in a social service capacity.

Writs of habeas corpus were issued by various courts with respect to the following patients:

On July 30, 1915, E. S., Identification No. 82975, was produced in court, and the court left the matter of the patient's discharge to the judgment of the superintendent. Later the patient was granted a six months' parole.

On October 5, 1915, J. L., Identification No. 85371, was produced in court and was discharged to the custody of self.

On December 28, 1915, C. W. R., Identification No. 74749, was produced in court and discharged on bond to the custody of his attorney.

—*Manhattan State Hospital, Wards Island.*—No special work has been carried on during the past six months except on the construction of the building, Female Division, for 200 patients, and the building, Male Division, for 150 patients. The winter weather has somewhat interfered with the progress on these buildings. The other work connected with the hospital has been more of a routine nature, such as repairs, etc. Since the last summary was submitted the new nurses' home has been furnished and occupied.

During the winter, work on the foundation of a new power house to take the place of the other two power houses (one in the Female Division and the other in the Male Division) has been going on. Considerable material has been delivered, but the work is not far advanced as yet.

—*Mohansic State Hospital, Mohansic.*—After considerable investigation and agitation it was determined that the disposal of sewage from this hospital would contaminate the water supply of New York City, as the hospital is situated on the Croton watershed. A bill authorizing the disposal of the hospital and the utilization of the proceeds for the establishment of a hospital elsewhere was introduced before the legislature. Later there was some disagreement as to whether the City of New York should not reimburse the state for the money which had already been spent upon the property. Meantime the necessity for a new hospital becomes stronger and each state hospital is overcrowded.

—*Rochester State Hospital, Rochester.*—On December 1, 1915, a room was set apart for the exhibition and sale of the work of the Dementia Præcox School.

—*St. Lawrence State Hospital, Ogdensburg.*—A movement for the establishment of mental dispensaries throughout the hospital district, in cooperation with the State Charities Aid Association, has been begun. The plan is to locate these dispensaries in the larger communities throughout the district. Thus far two clinics have been opened, one at Malone, N. Y., the other at Watertown, N. Y. If the number of patients who applied for consultation is any criterion as to the necessity of this work the need was fully demonstrated. Two hundred and twenty-four thus far, in three sessions of the clinic, have been interviewed.

—*Willard State Hospital, Willard.*—The Committee on Mental Hygiene and After Care, consisting of 14 members, all resident in the hospital district, which was established in 1907, held its annual meeting at the hospital October 8, at which reports were made by individual members concerning the work they had done in connection with the cases paroled or discharged from the hospital. The object of this committee is to educate, as far as possible, in regard to the causes of mental disease; to devise and inaugurate preventive measures in the hospital district; to provide temporary assistance and employment when necessary, and friendly aid and counsel for all patients paroled or discharged from the hospital. The work is of the nature of personal service. Experience has shown that such service is agreeably accepted and appreciated by all classes of patients, and it is extremely rare that anyone shows a tendency to resent the kindly interest of the members of this committee. The committee also acts as a medium of communication between the public and the hospital which tends to inspire confidence in the management of institutions of this character and lessen the prejudice and ignorance which have always existed to a greater or less extent. Members of the committee are at full liberty to visit the hospital at any time and meet the patients from their district, and also to familiarize themselves with methods of management and treatment. The total number of patients referred to the committee during the year ending September 30, 1915, was 89, which represents nearly all of those paroled or discharged. It is the practice to parole to their relatives and friends as many patients as possible, whether recovered or not, when further residence at the hospital is not likely to be of benefit to them and their condition is such that it will not be inimical to the welfare of the community outside. Consequently many leave the hospital whose disorder is of a chronic nature, and in some instances it is found that improvement takes place after they return to their homes. The average daily number on parole was 31 men and 35 women. Since October 1, 25 men and 7 women, paroled or discharged from the hospital, were reported to the committee.

Two concrete ice houses were constructed during November and December. A large cow stable at the Grange, which houses 76 head of cattle, has been raised 18 inches and put on a new concrete foundation and equipped with new concrete floors, metal stanchions and individual drinking basins. The interior has also been ceiled throughout, all of which has produced a marked improvement in the sanitary conditions.

All the wards in the group of cottages known as "Sunnycroft" have been repaired and painted during the winter.

—*The Craig Colony for Epileptics, Sonyea.*—Recently the ironing department of the colony laundry has been equipped with an entire electrically-driven and steam-heated ironing equipment, thus putting the colony in a position to handle a greatly increased amount of employees' and patients' clothing in this department. Two tumbler driers have been added to the drying equipment, as also three electrically-driven washing machines.

The Letchworth House, an old four-story Shaker Dormitory, which was remodeled in part at the time the colony was established, has had removed from the three upper floors all patients and the space thus vacated is occupied by employees. Thirty patients reside on the first floor of this old building. For several years past funds have been requested to erect elsewhere at the colony dormitories to provide the space needed by the change above referred to.

On February 1, 1916, the colony post office was discontinued by the United States Postal Department, thus necessitating the colony sending to

Mt. Morris, three and one-half miles distant, for all mail matter. The United States Postal Department refused to consider the post office at the colony as an institutional post office, although there were but three families, one of these being that of the Pennsylvania Railroad Station Agent residing at the colony, who received mail through this post office in addition to the mail received by the employees and patients at the colony, the latter number exceeding 1800.

Graduating exercises of the Colony Training School for Nurses were held in the assembly hall at the colony on September 19, 1915, at which time eight were graduated.

A committee of the State Senate has submitted a report covering the matter of readjustment of salaries in the various departments in institutions. They propose to make the effort to have the state give like compensation for like services. The colony, as some other institutions, has long been discriminated against in this direction as compared with the state hospitals for the insane.

A new X-ray equipment, installed by Waite and Bartlett, of New York City, has been placed in the colony hospital at a cost of $1850.

By certain alterations made in the infirmary for male patients a sick ward accommodating 20 patients has been made ready for use on the ground floor, adjoining which room is being installed a tub for the giving of continuous baths.

The new barn erected during the past year in the west group of the colony is now in use. A request has been made during recent years for an appropriation to erect certain other structures, such as dormitories, etc., in this group so as to make the same a subfarm colony.

Folk dancing and work in crafts is being developed among many of the patients residing in the infirmary for females; similar work being also inaugurated but less advanced in the infirmary for males.

NORTH CAROLINA.—*State Hospital, Dix Hill, Raleigh.*—There is under construction a new psychopathic ward, which will be equipped with all the modern hydrotherapeutic appliances. In this building will be an out-patient department planned for the class of nervous and mental cases that can be benefited in this department. A new operating room has been constructed on modern lines.

The training school for nurses has been reorganized and placed under the direction of a graduate nurse. The pupils will spend their intermediate year at Bellevue Hospital with which this hospital has affiliated. The pupils by this method will return to us for their last year and in this way the efficiency of the nursing force will be increased and at the same time the pupils will have a more liberal allowance than they would receive at a general hospital. A new nurses' home is being erected.

A new mending room has been constructed, so that the sewing room is able to devote its entire energy to the manufacture of materials.

During the year a new industrial building is expected to be constructed.

A number of clubs for patients have been organized on the wards, such as sewing circles, card clubs, and musical and literary circles. Reading circles for all patients are weekly conducted on the various wards under the supervision of capable nurses. It is felt that the patients are showing a great deal of improvement since their inauguration, and the patients are beginning to take a great deal of pride in their membership. In this way a number of patients are employed who at one time would never willingly leave the wards.

The pathologist, Dr. Pendleton, has made complete laboratory examinations on all new admissions and other patients who required such examinations. The admissions during the past year number something over 300 patients. The laboratory examinations include Wassermann and Noguchi. The paretics have been receiving the intra-spinal mercurialized serum treatment and in many cases show great improvement.

OHIO.—*Columbus State Hospital, Columbus.*—This hospital is erecting a power house at the present time which is expected to cost about $106,000. When completed it will be one of the best equipped power houses of any institution of the country.

An appropriation of $40,000 is to be expended this season in the erection of a $70,000 cottage, the other $30,000 being available the coming season.

—*Lima State Hospital, Lima.*—The Lima State Hospital for the criminal insane was authorized by an act of the Ohio legislature in 1904. A building commission was appointed in 1908, and immediately selected Frank L. Packard, of Columbus, as architect. After visiting all of the hospitals for criminal insane in the United States, plans and specifications were drawn up embodying all the good points of the institutions visited and inspected, together with original ideas on the subject, and immediately commenced construction, which continued uninterruptedly from that date until April, 1915, when the work was virtually completed and the hospital opened for the reception of patients.

The hospital is designed to care for the following classes of insane persons, as specified by law:

1. Persons who have become insane while in the Ohio State Reformatory or the Ohio Penitentiary.
2. Dangerous insane persons in other state hospitals.
3. Persons accused of crime but not indicted because of insanity.
4. Persons indicted but found to be insane.
5. Persons acquitted because of insanity.
6. Persons adjudged to be insane, who were previously convicted of crime.
7. Such other persons as may be directed by law.

Dr. Charles H. Clark, Superintendent of the Cleveland State Hospital, was appointed superintendent on September 15, 1914, and the hospital was completed under his direction and made ready for the reception of patients.

The medical staff at present consists of two assistants, Dr. John H. Berry, formerly first assistant at Longview Hospital, Cincinnati, O., first assistant, and Dr. Wilhelm H. Vorbau, formerly second assistant at the Athens State Hospital, second assistant. A third assistant will be added when the population of the hospital requires the addition.

The normal capacity of the hospital is 1000, but this could be increased should necessity demand it. The present population is 680, consisting of patients transferred from all the other state hospitals, including 76 insane from the Ohio Penitentiary.

The hospital is equipped with a pathological laboratory for work on modern lines. The surgical department, including operating room, anæsthetic room, electric sterilizing apparatus, etc., is fully up to date in all respects.

During the coming summer the superintendent's residence will be erected at a cost of about $15,000. Also, the dairy barn with a capacity of 50 cows. The piggery will be of concrete and will be started as soon as the weather permits.

In addition, there is much work to be done in beautifying the grounds and surroundings. Patients' labor will be utilized in this work as well as in cultivating the 610-acre farm surrounding the institution. The number of patients who are able to work and who will be benefited by it has so far exceeded expectations, considering the character of cases in the hospital.

The Lima State Hospital is unique in many respects, and when the finishing touches have been completed will be on a par with any in the United States.

—*Massillon State Hospital, Massillon.*—This hospital suffered from a fire which completely destroyed the laundry building on the night of February 19, 1916. The fire probably originated in the dry room, but was under such headway when discovered that its origin cannot be definitely ascertained. The hospital fire department gave prompt response, and several streams of water were turned upon the fire within five minutes after the alarm. The city fire department was on hand within 15 or 20 minutes, and with the two departments working under the direction of Fire Chief Burkle, of the city department, the adjoining buildings were saved, although the boiler house was on fire no less than five times. In addition to the loss of the building, which included the sewing room, the marking room, mending room and distributing room, there were large quantities of patients' clothing, trunks, valises, etc. The total loss will probably reach $100,000. Arrangements are already under way to rebuild. Plans have been prepared and an estimate of cost submitted to the emergency board. Temporary quarters have been prepared, and through the generosity of the American Laundry Machinery Co., enough machinery has been installed to take care of the work partially.

A new cottage for patients will be constructed the coming summer.

—*Cincinnati Sanitarium, Cincinnati.*—A new building, known as Rest Cottage, has been provided for the treatment of non-mental patients requiring treatment for nervous and nutritional disorders.

A wire fence on concrete posts has been placed about three sides of the grounds of 30 acres, or about 1700 yards. The fourth side, which fronts on Hamilton Avenue, is marked by a privet hedge, which is more in harmony with the suburban tone of the neighborhood.

A hennery for 1000 birds is expected to solve the "fresh egg problem."

PENNSYLVANIA.—*State Hospital for the Insane, Danville.*—During the early fall there was quite an extensive epidemic of typhoid fever at this hospital, there being 115 cases among patients and employees.

—*State Hospital for the Insane, Norristown.*—An outbreak of typhoid fever occurred at this hospital during September. There were over a dozen cases in all. The water supply is from artesian wells and the milk supply was apparently not the source.

—*Blair County Hospital for the Insane, Hollidaysburg.*—During the past summer the patients (under the charge of skilled attendants) erected a concrete post and iron tube fence along the public highway, in front of the institution. Square hollow concrete blocks and caps with a 10-inch ball over all for each post were made in the Concrete Shop. A hole 15 inches square by 3 feet 9 inches deep for the foundation of each post was made and a 1-2-4 mixture of cement, sand and stone used for foundation. As the block was laid, two 2-inch condemned locomotive boiler tubes were placed in appropriate position. The boiler tubes were coated with a special "non-rusting" compound and paint. The result is a handsome, durable and inexpensive fence.

The concrete piggery, 148 feet by 36 feet, was completed early in 1915. An institution piggery should always be designed to embrace the following cardinal principles:

1. Health and sanitation of its inhabitants.
2. To obtain the greatest return possible for the investment.
3. To reduce maintenance cost to lowest possible limit.

For the benefit of others who may possibly not have had a large and varied experience with piggeries and diseases of hogs, the following practical points in design are given:

An exclusively concrete floor in a piggery always results in rheumatism in a large proportion of hogs, even though a deep bed of straw may be provided. This may be obviated in one of two ways: by providing wood palates with an air space between the concrete and the wood, or by providing a "den" with no concrete on bottom—simply using dirt or sand for a floor. The feeding pen with unprotected concrete floor is no injury when "sleeping dens" are provided with plenty of litter for the hogs. It is remarkable how cleanly the hogs appear if thus provided.

Practically perfect sanitation can be obtained in an exclusively concrete piggery—with wood palates on the floor of the sleeping dens—by the use of hose, disinfectants and whitewash at frequent intervals.

Overhead and side drafts can be guarded against by hinging windows from bottom and providing a shield on each side of the window.

With ordinary care and especially when new stock is bought, care being taken not to introduce the animals into the herd or even near to the piggery until such animals have had frequent baths, together with at least one good scrubbing, using an antiseptic—the nightmare of hog cholera will be practically eliminated, provided the piggery is built on new ground where no hog manure had been spread.

A sanitary, well-cared for piggery is a never failing source of revenue, by reducing the meat bills of the fortunate institution; on the contrary an unsanitary piggery with recurring hog cholera is an added expense to the maintenance fund.

During the past year stocking and sock making have been added to the Industrial Department, and this year it is expected to add brush and broom making. With these additions the shops will be complete, there now being carpenter, plumbing, tin, blacksmith, rug and mattress shops for the men patients.

During the coming year it is proposed to build a concrete block wall about the barnyard.

RHODE ISLAND.—*State Hospital for the Insane, Howard.*—A three-story, fire-proof ward building has just been completed. Its purpose is for able-bodied patients of the quiet and orderly class.

SOUTH CAROLINA.—*South Carolina State Hospital for the Insane, Columbia.*—Following the appropriation by the legislature of $150,000 for development and repairs, and the appointment in May, 1915, of Dr. C. Fred Williams as superintendent, plans were prepared for the modernization of the hospital.

In July, the process of remodeling was begun and by the end of December six wards of the white male patients were radically changed in plan and equipped with shower baths and sanitary plumbing facilities. A thoroughly modern large central kitchen has been built and is almost ready for occupancy, under which is located an ice making plant and two large cold storage rooms. A new congregate dining-room for female patients and nurses, designed to accommodate at least 600 has been built adjacent to the kitchen. This will eliminate the numerous small ward dining-rooms and increase the capacity of the white female department.

A modern dairy building to accommodate 100 head of cattle has been built. It is expected that all the milk used by the hospital will be supplied by this dairy.

New laundry machinery has been provided.

Telephones have been installed in every ward and department of the hospital with a central switchboard in the main building.

By remodeling a cottage on the grounds a home for white female nurses has been established.

A printing press has been purchased and many of the blank forms now in use are the product of the " State Hospital Press," largely the work of patients.

Two continuous baths have been placed in the building for disturbed white females.

An increased supply of excellent water has been obtained for State Park, allowing the transfer of some 80 colored men to the Park, relieving the overcrowded conditions at the main hospital. The colored males at State Park have been lodged temporarily in the building once designed for a laundry.

The force of nurses and attendants has been increased, and a white male and white female night supervisor have been appointed.

An experienced pharmacist has been placed in charge of the drug room. This relieves the male supervisors who had formerly attended to the dispensing and allows them to devote their entire time to their respective departments.

The white male nurses have been uniformed in white duck.

Many of the rooms, ward corridors, pantries, dining-rooms, baths and toilet rooms in the female department have been repainted.

A complete reorganization of the administration methods was instituted and each department placed under an experienced and responsible head.

Dr. William C. Sandy, of the Kings Park State Hospital, Kings Park, N. Y., was secured as medical director, and he assumed charge of the Medical Department on June 3, 1915. At the main hospital a complete new staff of physicians was appointed, including three assistant physicians, a pathologist, a woman physician and three internes. Instruction was started in methods of psychiatric examination, classification and the modern system of care and treatment of the insane. Since June 23, 1915, daily staff meetings, except Sundays, have been held at which all new patients are presented, thoroughly discussed as to diagnosis and treatment, and any other matters of importance to the medical work considered.

Special efforts have been made to promote diversional occupation among the patients. By the end of December, over 45 per cent of the patients were interested in some one of the 35 forms of occupation available.

Plans for further extension of improvements call for the removal of most if not all of the negro patients to the State Park; the building of a central power and heating plant; the building of a central dining-room for the white male patients; the remodeling of the wards for white female patients and the remainder of the wards for white males.

It is expected that in the future some provision will be made for a psychopathic hospital, but as yet the efforts will be confined to remodeling the present buildings as stated above.

VIRGINIA.—A law for the sterilization of defectives was introduced at the last legislature but failed to pass.

—*Western State Hospital, Staunton.*—A new building to accommodate 150 male patients will be erected by patient labor, brick being used. It is expected that $20,000 will cover the cost which will be for material.

—*State Epileptic Colony, Madison Heights.*—A new building designed as an infirmary and boys' dormitory has been put into use and somewhat relieves the congestion hitherto existing. The patient population is over 340.

WEST VIRGINIA.—*Spencer State Hospital, Spencer.*—This institution keeps forging to the front with rapid strides. Last October the training school was put on a firm basis by the employment of a skilled superintendent of nurses, who will have charge of this work. There has been employed an industrial teacher, a skilled dairyman, and a florist and landscape gardener. Four hundred acres of land were rented adjoining the state property, which will be used for farming. There is a large dwelling on this, which will be used as a farm colony. A farm tractor has been purchased to do farming on a large scale. The dairy herd of Holsteins has been doubled; a greenhouse 18 x 40 feet has been erected, and another addition of the same size will be built in the spring. Two hundred Norway maple shade trees, several hundred berry bushes, grape vines and rose bushes have been planted. The congregate dining-room has been enlarged. Tile has been made and a 2-feet sewer line has been laid through the farm for a distance of 500 feet.

The plans have been made and approved for a receiving building (for both sexes) containing 50 beds. This building will be built of brick, with slate roof, by the regular hospital force, and will contain all the facilities found in a modern acute building, among others a complete hydrotherapy outfit.

CANADA.—*Protestant Hospital for the Insane, Montreal.*—The Nurses' Home, construction of which was begun in October, 1915, is now roofed in and the work of completing the interior is going on apace. It will be a great boon to the hospital, and it is expected the nursing staff will be able to occupy their new quarters not later than August or September, 1916.

—*Hospital for Insane, Hamilton.*—Owing to the urgent call for men to go overseas great difficulty is being experienced in keeping up the professional staff, as also that of the male employees generally.

Dr. Walter W. McKenzie, Assistant Physician, joined the Canadian Army Medical Corps, and 64 men the ranks, some having been in Flanders since the fall of 1914. The head nurse and three supervisors who are graduates of the training school have also been accepted as Nursing Sisters and will serve in the Psychiatric Department of the Ontario Military Hospital at Orpington, England.

Re-educational work, in the matter of physical culture, basketry, weaving, etc., was commenced in earnest in July, 1915, and Miss Annie C. Wallace, who after graduating had spent several months in post-graduate work in New York, was placed in charge. Much pleasure and benefit have been derived by the several classes that have been organized, and the display of handiwork at the National Exhibition, Toronto, attracted much attention and many enconiums.

—*Asylum for the Insane, St. John's, Newfoundland.*—This is the only institution in the colony for the treatment of the insane. On January 1, of this year there were 294 patients, 156 women and 138 men.

A large new kitchen and laundry is being fitted up and it is hoped to have it completed by the middle of April.

It is hoped this year to have a new ward on both the male and female side of the institution as the institution is pretty well crowded.

Appointments, Resignations, Etc.

Abbott, Dr. E. Louise, Assistant Physician at Elgin State Hospital at Elgin, Ill., transferred to Lincoln State School and Colony at Lincoln, Ill.

Adams, Dr. R. K., Assistant Physician at New Jersey State Village for Epileptics at Skillman, appointed Physician-in-Charge of Male Department at State Hospital at Raleigh, N. C.

Alexander, Dr. Robert M., First Assistant Physician at State Hospital for Chronic Insane at Wernersville, Pa., resigned to enter private practice in Reading, Pa.

Allen, Dr. Edward B., Assistant Physician at Danvers State Hospital at Hathorne, Mass., appointed Assistant Physician at Boston State Hospital at Boston, Mass.

Armstrong, Miss Florence A., appointed Field-Worker at Gowanda State Hospital at Gowanda, N. Y., October 1, 1915.

Atherton, Dr. Clesson C., Assistant Superintendent of Watertown State Hospital at Watertown, Ill., transferred to Jacksonville State Hospital at Jacksonville, Ill. A handsome silver service was presented to Dr. and Mrs. Atherton at a farewell entertainment by the employees.

Austin, Dr. Anne, appointed Woman Physician at State Hospital for the Insane at Columbia, S. C., August 1, 1915.

Baker, Dr. Leonard A., Assistant Physician at Bridgewater State Hospital at Bridgewater, Mass., resigned to enter private practice in Middleborough, Mass.

Bancroft, Dr. Carroll Rollin, formerly Assistant Superintendent of Montana State Hospital at Warm Springs, died in Los Angeles, Cal., February 3, 1916, aged 36.

Barber, Dr. Leon J., Medical Interne at Willard State Hospital at Willard, N. Y., resigned November 11, 1915, to enter private practice.

Baxter, Dr. Mark W., Superintendent of Ingleside State Hospital at Hastings, Neb., resigned.

Beall, Dr. John R., Medical Interne at Manhattan State Hospital at Wards Island, N. Y., resigned December 31, 1915.

Benson, Dr. Harold O., appointed Medical Interne at Kings Park State Hospital at Kings Park, Long Island, N. Y., September 1, 1915.

Blackburn, Dr. Ella, Assistant Physician in Charge of Department for Women at Iowa State Hospital for the Insane at Mount Pleasant, resigned October 5, 1915.

Blake, Dr. John Bapst, Chairman of Trustees of Monson State Hospital at Monson, Mass., resigned.

Blake, Dr. John G., Trustee of Gardner State Colony at Gardner, Mass., resigned.

Blankinship, Dr. Roy C., appointed Clinical Assistant at Manhattan State Hospital at Wards Island, N. Y., December 22, 1915, and resigned January 11, 1916.

Bledsoe, Dr. Edwin P., appointed Superintendent of State Hospital for Nervous Diseases at Little Rock, Ark.

Bles, Dr. V. A., Assistant Physician at Elgin State Hospital at Elgin, Ill., resigned because of ill health.

Bowditch, Mr. John P., appointed Trustee of Grafton State Hospital at Worcester, Mass.

Brackett, Mrs. Luann L., Trustee of Massachusetts School for Feeble-Minded at Waverley, died October 16, 1915.

Brady, Dr. Emory J., Assistant Superintendent of Traverse City State Hospital at Traverse City, Mich., appointed Superintendent of a sanitarium in Colorado Springs, Col.

Broderick, Dr. Charles E., appointed Assistant Physician at State Hospital for the Insane at Howard, R. I.

Brown, Miss Ruth, appointed Social Worker at Wrentham State School at Wrentham, Mass.

Browning, Dr. William John, formerly Assistant Physician at Central State Hospital for Insane at Indianapolis, died at his home February 23, 1916, from the effects of hydrocyanic acid, self-administered, it is believed with suicidal intent, while despondent on account of ill health.

Buell, Dr. Blinn A., Assistant Physician at Binghamton State Hospital at Binghamton, N. Y., resigned to enter private practice July 7, 1915.

Butterfield, Dr. George K., Assistant Physician at Grafton State Hospital at Worcester, Mass., resigned.

Caldicott, Dr. Francis S., appointed Assistant Physician at Taunton State Hospital at Taunton, Mass.

Caro, Dr. Herman, appointed Assistant Physician at Monson State Hospital at Palmer, Mass.

Carson, Dr. Harry D., appointed Acting Superintendent of Nebraska State Hospital at Norfolk.

Cashman, Mrs. Margaret, appointed Trustee of Grafton State Hospital at Worcester, Mass.

Caskin, Mr. Francis H., Jr., appointed Trustee of Danvers State Hospital at Hathorne, Mass.

Chambers, Dr. Ralph M., appointed Junior Assistant Physician at Westborough State Hospital at Westborough, Mass.

Champlin, Dr. Paul M., appointed Assistant Physician at Gowanda State Hospital at Gowanda, N. Y.

Chittenden, Dr. George F., formerly Commissioner of Indiana State Hospital for the Insane, died at the residence of his daughter in Anderson, Ind., October 31, 1915, aged 84.

Cornell, Dr. William B., Executive Secretary of Maryland Mental Hygiene Society, appointed Medical Director of Children's Hospital and School at Randall's Island, N. Y.

Cotton, Dr. Julia C., Junior Assistant Physician at New Jersey State Hospital at Morris Plains, resigned to take effect May 1, 1916.

Cutler, Mr. Roger W., appointed Trustee of Grafton State Hospital at Worcester, Mass.

Davis, Dr. Raleigh L., appointed Second Assistant Physician at State Hospital for Insane at Austin, Tex.

Davis, Mr. Thomas W., Trustee of Massachusetts School for Feeble-Minded at Waverley, died.

De La Hoyde, Dr. T. Grover, Assistant Physician at Hudson River State Hospital at Poughkeepsie, N. Y., transferred to Binghamton State Hospital at Binghamton, N. Y., November 15, 1915.

Dewar, Dr. G. F., appointed Acting Superintendent of Falconwood Hospital for the Insane at Charlottetown, Prince Edward Island, during the absence of Dr. Goodwill on active service.

Doherty, Dr. Charles E., Superintendent of New Westminster Hospital for the Insane, British Columbia, is in charge of invalided Canadians returning from the war.

Donahue, Mr. Dan A., Trustee of Danvers State Hospital at Hathorne, Mass., resigned.

Doyne, Dr. Charles R., Assistant Physician at State Hospital for Nervous Diseases at Little Rock, Ark., resigned.

Durgin, Dr. Delmer D., Assistant Physician at Kings Park State Hospital at Kings Park, Long Island, N. Y., transferred to Central Islip State Hospital at Central Islip, Long Island, N. Y., September 1, 1915.

Edmunds, Dr. Meade C., Medical Interne at Manhattan State Hospital at Wards Island, N. Y., promoted to Assistant Physician March 23, 1916.

Evans, Dr. Britton D., Superintendent of New Jersey State Hospital at Morris Plains, appointed Chairman of a committee to prepare legislation for the better care of the insane.

Farrell, Dr. Charles E., appointed Assistant Physician at State Hospital for the Insane at Howard, R. I.

FAST, DR. WILLIAM S., Superintendent of Institute for Feeble-Minded at Beatrice, Neb., appointed Superintendent of Ingleside State Hospital at Hastings, Neb.

FELTY, DR. JOHN C., First Assistant Physician at New Jersey State Hospital at Trenton, resigned October 4, 1915, to enter private practice in Gettysburg, Pa.

FISHER, DR. GERTRUDE G., appointed Interne at Psychopathic Hospital at Boston, Mass.

FITZGERALD, DR. JAMES J., appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., March 27, 1916.

FLAMAND, HON. JOSEPH J. C., appointed Trustee of Medfield State Hospital at Medfield, Mass.

FLINT, DR. AUSTIN, Visiting Physician since 1869, and Consulting Physician and Visiting Physician since 1896 to Insane Pavilion of Bellevue Hospital, died at his home in New York City, September 22, 1915, from cerebral hemorrhage, aged 79.

FOLEY, DR. EDWARD A., Assistant Physician at Jacksonville State Hospital at Jacksonville, Ill., appointed Assistant Superintendent at Watertown State Hospital at Watertown, Ill.

FOURTIN, DR. EDMUND RANDOLPH PEASLEE, formerly Assistant Physician at Foxborough State Hospital at Foxborough, Mass., died suddenly in Waltham, Mass., from heart disease, while making a professional call, aged 49.

FREEMMEL, DR. HARRY J., Assistant Physician at Lincoln State School and Colony at Lincoln, Ill., resigned April 1, 1916, to enter private practice in Chicago.

GAGE, MR. T. HOVEY, Trustee of Worcester State Hospital at Worcester, Mass., resigned.

GARISS, DR. JOSEPH L., Junior Assistant Physician at Government Hospital for the Insane at Washington, D. C., resigned November 30, 1915.

GARVIN, DR. WILLIAM C., Senior Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., appointed First Assistant Physician at Kings Park State Hospital at Kings Park, Long Island, N. Y., July 10, 1915.

GINSBURG, MR. EDWARD E., appointed Trustee of Worcester State Hospital at Worcester, Mass.

GOULD, DR. JAMES C., appointed Junior Assistant Physician at Westborough State Hospital at Westborough, Mass.

GREENE, DR. JAMES L., appointed Superintendent of State Hospital for Nervous Diseases at Little Rock, Ark., a position which he had formerly held.

GREGORY, DR. HUGH S., Medical Interne at St. Lawrence State Hospital at Ogdensburg, N. Y., promoted to Assistant Physician-Pathologist, May 28, 1915.

GRIFFITHS, DR. DANIEL G., Pathologist at Lincoln State Hospital for the Insane at Lincoln, Neb., appointed Superintendent of State Institute for Feeble-Minded at Beatrice, Neb.

GROVER, DR. MILTON M., Assistant Physician at Central Islip State Hospital at Central Islip, Long Island, N. Y., transferred to Kings Park State Hospital at Kings Park, Long Island, N. Y., September 1, 1915.

GUILLET, MR. JOSEPH H., Trustee of Foxborough State Hospital at Foxborough, Mass., term expired.

GUTTERY, DR. WILLIAM D., Superintendent of Nebraska State Hospital at Norfolk, is said to have been permanently suspended.

HAGGERTY, DR. JAMES E., Junior Assistant Physician at Craig Colony at Sonyea, N. Y., resigned to enter private practice in Detroit, Mich., April 1, 1916.

HALL, DR. GEORGE W., appointed Attending Physician at Cook County Psychopathic Hospital at Chicago, Ill.

HEADEN, DR. W. E., Director of Eastern State Hospital at Goldsboro, N. C., resigned on account of ill health.

HENDERSON, DR. ESTELL, appointed Superintendent of Southwestern State Hospital at Marion, Va.

HENRY, MISS MARY C., Trustee of Grafton State Hospital at Worcester, Mass., term expired.

HERRICK, MR. LEANDER F., appointed Trustee of Grafton State Hospital at Worcester, Mass.

HEYM, DR. ALBRECHT, appointed Attending Physician at Cook County Psychopathic Hospital at Chicago, Ill.

Hickling, Dr. D. Percy, Superintendent of Washington Insane Hospital at Washington, D. C., appointed Chairman of Public Health Committee of the Washington Board of Trade.

Hinde, Dr. Hubbard Kavanaugh, formerly Superintendent of State Hospital No. 1 at Fulton, Mo., died December 10, 1915, from pneumonia, aged 81.

Hoban, Mr. Owen A., appointed Trustee of Gardner State Colony at Gardner, Mass.

Horger, Dr. E. L., appointed Pathologist at State Hospital for the Insane at Columbia, S. C., July 19, 1915.

Horner, Dr. Harriet, Assistant Physician at Westborough State Hospital at Westborough, Mass., resigned.

Hughes, Dr. John J., appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., January 3, 1916.

Hummer, Dr. H. R., Superintendent of Asylum for Insane Indians at Canton, S. D., was elected Vice-President of the Seventh District Medical Society of South Dakota, December, 1915.

Hunt, Dr. J. Ramsay, appointed Manager of Craig Colony for Epileptics at Sonyea, N. Y.

Inch, Dr. George F., Assistant Physician at Kalamazoo State Hospital at Kalamazoo, Mich., promoted to be Assistant Superintendent.

Jackson, Dr. Roy C., Assistant Physician at Worcester State Hospital at Worcester, Mass., resigned.

Jameson, Mr. William, appointed Trustee of Monson State Hospital at Palmer, Mass.

Kalloch, Dr. Dudley C., appointed Medical Interne at Government Hospital for the Insane at Washington, D. C., December 2, 1915.

Karpas, Dr. Morris J., Assistant Physician at Manhattan State Hospital at Wards Island, N. Y., resigned to enter private practice in New York City.

Keating, Dr. Frank W., Superintendent of Rosewood State Training School at Owings Mills, Md., was recently operated upon for appendicitis.

Kiely, Dr. Charles E., Medical Interne at Manhattan State Hospital at Wards Island, N. Y., resigned October 31, 1916.

Kimberlin, Dr. Herbert C., appointed Assistant Physician at State Hospital No. 2 at St. Joseph, Mo.

King, Dr. George E., Assistant Physician at Monson State Hospital at Palmer, Mass., resigned to enter private practice.

King, Dr. John C., Superintendent of Southwestern State Hospital at Marion, Va., resigned.

Kirby, Dr. George H., Clinical Director at Manhattan State Hospital at Wards Island, N. Y., granted six months leave of absence for special psychiatrical work.

Krickbaum, Dr. William H., Assistant Physician at State Hospital for Insane at Danville, Pa., died September 21, 1915, from typhoid fever.

Kuh, Dr. Sidney, appointed Attending Physician at Cook County Psychopathic Hospital at Chicago, Ill.

Ladd, Miss Charlotte R. F., appointed Trustee of Grafton State Hospital at Worcester, Mass.

Leak, Dr. R. Leighton, appointed Physician-in-Charge of Syracuse Psychopathic Hospital at Syracuse, N. Y.

Lepine, Mr. Maxime, appointed Trustee of Foxborough State Hospital at Foxborough, Mass.

Libby, Dr. Marian K., appointed Director of Industrial Therapeutics at Worcester State Hospital at Worcester, Mass.

Lightfoot, Dr. Wooten D., appointed Fourth Assistant Physician at State Hospital for the Insane at Austin, Tex.

Locke, Dr. Hersey G., Physician-in-Charge of Syracuse Psychopathic Hospital at Syracuse, N. Y., resigned.

Lucas, Dr. George N., Assistant Physician at Elgin State Hospital at Elgin, Ill., appointed Assistant Physician at Wilgus Sanitarium at Rockford, Ill.

McIntosh, Dr. Jennie G., Junior Assistant Physician at Worcester State Hospital at Worcester, Mass., promoted to Assistant Physician.

McLean, Dr. Jean, Assistant Physician at Northampton State Hospital at Northampton, Mass., resigned to take a position in the Children's Hospital at Edinburgh, Scotland.

McNeill, Dr. John F., Medical Interne at Willard State Hospital at Willard, N. Y., appointed Assistant Physician at Central Islip State Hospital at Central Islip, N. Y., November 20, 1915.

MacIntyre, Dr. William A., Assistant Physician at Psychopathic Hospital at Boston, Mass., transferred to Grafton State Hospital at Worcester, Mass., August 31, 1915.

Mason, Miss Flora L., appointed Trustee of Westborough State Hospital at Westborough, Mass.

Mason, Dr. William H., appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., January 1, 1916.

Meter, Dr. J. Van, Assistant Superintendent of State Hospital for Inebriates at Knoxville, Iowa, appointed Assistant Physician at Clarinda State Hospital at Clarinda, Iowa.

Miller, Dr. C. J., appointed Interne at State Hospital for the Insane at Columbia, S. C., June 10, 1915.

Miller, Dr. T. N., appointed Third Assistant Physician at State Hospital for the Insane at Austin, Tex.

Mills, Dr. Charles K., Professor of Nervous and Mental Diseases at University of Pennsylvania, resigned.

Munnerlyn, Dr. J. F., appointed Assistant Physician at State Hospital for the Insane at Columbia, S. C., June 22, 1915.

Murdoch, Dr. Cora B., appointed Assistant Physician at Hospital for the Insane at Hamilton, Canada, September 15, 1915, and resigned April 1, 1916.

Murphy, Dr. Patrick, appointed Assistant Physician at State Hospital for Nervous Diseases at Little Rock, Ark.

Mutchler, Dr. H. Raymond, Junior Assistant Physician at New Jersey State Hospital at Morris Plains, resigned to enter private practice April 1, 1916.

Neuffer, Dr. Gottlieb A., appointed a member of the Board of Visitors of State Hospital for Insane at Columbia, S. C.

Noble, Dr. Alfred Ira, Superintendent of Kalamazoo State Hospital at Kalamazoo, Mich., died suddenly in Detroit, January 20, 1916, from gastritis, aged 55.

Nolan, Dr. Leonard S., Assistant Physician at Binghamton State Hospital at Binghamton, N. Y., resigned to enter private practice October 31, 1915.

Noyes, Dr. William, formerly Superintendent of Boston Insane Hospital, died at his home in Jamaica Plains, October 20, 1915, aged 58.

O'Connell, Richard Francis, formerly Superintendent of State Hospital for Epileptics at Gallipolis, Ohio, died at his home in Columbus, Ohio, January 5, 1916, aged 47.

O'Shea, Dr. Peter, appointed Trustee of Grafton State Hospital at Worcester, Mass.

Ostrander, Dr. Herman, Assistant Superintendent at Kalamazoo State Hospital at Kalamazoo, Mich., promoted to Superintendent.

Ott, Dr. Isaac, Consulting Neurologist to State Hospital for Insane at Norristown, Pa., died at his home in Easton, Pa., from pneumonia, aged 68.

Pace, Dr. W. T., appointed Interne at State Hospital for the Insane at Columbia, S. C., June 10, 1915.

Paquin, Dr. J. Ubalde, appointed Trustee of Monson State Hospital at Palmer, Mass.

Parker, Dr. George A., Assistant Physician at State Hospital for the Insane at Howard, R. I., resigned to enter private practice.

Parker, Dr. Ray, Assistant Physician at Philadelphia Hospital for the Insane, appointed First Assistant Physician at State Hospital for Chronic Insane at Wernersville, Pa.

Partridge, Dr. J. C., Assistant Physician at Binghamton State Hospital at Binghamton, N. Y., resigned to enter private practice September 1, 1915.

Perreault, Mr. Henry J., appointed Trustee of Grafton State Hospital at Worcester, Mass.

Raymond, Dr. C. Stanley, appointed Senior Assistant Physician at Massachusetts School for Feeble-Minded at Waverley, Mass.

Reed, Dr. Beatrice A., Assistant Physician at Taunton State Hospital at Taunton, Mass., appointed Assistant Physician at Northampton State Hospital at Northampton, Mass.

Reye, Dr. Heinrich A., Pathologist at Pontiac State Hospital at Pontiac, Mich., resigned.

Riley, Dr. William J., Jr., appointed Assistant Physician at Elgin State Hospital at Elgin, Ill.

Roberts, Dr. Delparde W., Assistant Physician at State Hospital for Nervous Diseases at Little Rock, Ark., resigned.

Roberts, Dr. Hibberd R., appointed Assistant Physician at Dannemora State Hospital at Dannemora, N. Y.

Robinson, Dr. L. F., Assistant Physician at New Jersey State Village for Epileptics at Skillman, appointed Physician-in-Charge of Female Department at State Hospital at Raleigh, N. C.

Rorick, Dr. Estell H., appointed a member of State Board of Administration of Ohio.

Rowland, Dr. Robert E., appointed Assistant Physician at State Hospital for Nervous Diseases at Little Rock, Ark.

Royal, Dr. Benjamin F., appointed Director of Eastern State Hospital for the Insane at Goldsboro, N. C.

Russell, Dr. A. Minnie, appointed Assistant Physician at Elgin State Hospital at Elgin, Ill.

Russell, Dr. Frederic J., Senior Assistant Physician at Massachusetts School for Feeble-Minded, appointed Superintendent at Vermont School for Feeble-Minded at Brandon.

Scheetz, Dr. Mildred E., Junior Assistant Physician at Government Hospital for the Insane at Washington, D. C., promoted to Assistant Physician October 1, 1915.

Schwinn, Dr. George Henry, First Assistant Physician at Government Hospital at Washington, D. C., died February 6, 1916, aged 42.

Shapiro, Dr. Benjamin, appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., November 8, 1915.

Shepherd, Dr. Arthur F., of State Board of Administration of Ohio, term expired.

Shepherd, Dr. James Benjamin, formerly Superintendent of State Hospital for the Insane at Austin, Tex., died at his home in San Antonio, October 11, 1915, aged 81.

Sights, Dr. Henry P., Superintendent of Western State Hospital at Hopkinsville, Ky., resigned.

Skversky, Dr. Abraham, Medical Interne at Manhattan State Hospital at Wards Island, N. Y., resigned December 31, 1915.

Smith, Dr. Samuel E., Superintendent of Eastern Indiana Hospital for the Insane at Richmond, Ind., is one of the speakers at the National Conference of Charities to be held at Indianapolis, May 10-17, 1916.

Smith, Dr. Theron, appointed Medical Interne at Binghamton State Hospital at Binghamton, N. Y., November 17, 1915.

Smithson, Dr. William W., Superintendent of State Hospital for the Insane at Asylum, Miss., resigned.

Solomon, Dr. Harry C., of Psychopathic Hospital at Boston, Mass., resigned, and appointed Investigator of Brain Syphilis with Massachusetts State Board of Insanity.

Spratling, Dr. William Philip, formerly Superintendent of Craig Colony at Sonyea, N. Y., died December 22, 1915.

Stearns, Dr. A. Warren, Assistant to State Board of Insanity of Massachusetts, resigned, and appointed to Out-Patient Department of Psychopathic Hospital at Boston, Mass.

Stewart, Mr. Frank H., appointed Trustee of Massachusetts School for Feeble-Minded at Waverley.

Stick, Dr. H. Louis, Superintendent of Grafton State Hospital at Worcester, Mass., resigned.

Stimpson, Dr. George C., appointed Assistant Physician at Elgin State Hospital at Elgin, Ill.

Teale, Mr. Charles E., was reappointed Manager of Kings Park State Hospital at Kings Park, Long Island, N. Y., by Governor Whitman, March 12, 1916.

Thompson, Dr. Charles B., Assistant Physician at Henry Phipps Psychiatric Clinic at Baltimore, Md., appointed Executive Secretary of Maryland Mental Hygiene Society.

Thompson, Dr. William J., Assistant Physician at Central Islip State Hospital at Central Islip, N. Y., appointed First Assistant Physician at Danvers State Hospital at Hathorne, Mass.

Thorne, Dr. Frederic H., Pathologist at New Jersey State Hospital at Morris Plains, resigned to enter private practice.

Travis, Dr. John H., Assistant Physician at Danvers State Hospital at Hathorne, Mass., resigned.

Truitt, Dr. Ralph P., Clinical Director at East Louisiana Hospital for the Insane at Jackson, resigned.

Tyler, Dr. Hoell, formerly Assistant Physician at New York City Hospital for the Insane at Blackwell's Island, died at his home in Redlands, Cal., August 25, 1915.

Van Cor, Dr. Chester A., Assistant Physician at Gardner State Colony at Gardner, Mass., resigned.

Vavasour, Dr. James F., Medical Interne at Manhattan State Hospital at Wards Island, N. Y., promoted to Assistant Physician March 23, 1916.

Vetter, Dr. George V., appointed Medical Interne at Rochester State Hospital at Rochester, N. Y.

Von Lehe, Dr. J. C., appointed Interne at State Hospital for the Insane at Columbia, S. C., June 10, 1915.

Wagenhals, Dr. Franklin C., appointed Medical Interne at Manhattan State Hospital at Wards Island, N. Y., January 1, 1916.

Warren, Dr. L. Maude, appointed Assistant Physician at Massachusetts School for Feeble-Minded at Waverley.

Watson, Dr. C. L., Assistant Physician at Central Islip State Hospital at Central Islip, N. Y.; transferred to Binghamton State Hospital at Binghamton, N. Y., September 15, 1915.

West, Dr. C. A., appointed Assistant Physician at State Hospital for the Insane at Columbia, S. C., June 14, 1915.

White, Dr. Moses J., Superintendent of Milwaukee County Hospital for the Insane at Wauwatosa, Wis., for twenty-two years, retired.

Wilhite, Dr. Jake T., Assistant Physician at State Hospital for Insane at Austin, Tex., appointed Physician-in-Chief at Pasteur Institute.

Williams, Mr. Fred. H., Trustee of Medfield State Hospital at Medfield, Mass., resigned.

Williams, Miss Sarah B., Trustee of Westborough State Hospital at Westborough, Mass., term expired.

Willis, Dr. Robert Luther, formerly Superintendent of Eastern Kentucky State Hospital at Lexington, died in his office at Lexington, November 6, 1915, from cerebral hemorrhage.

Woolsey, Dr. Calvin L., Assistant Physician at State Hospital No. 2 at St. Joseph, Mo., resigned.

Wright, Dr. J. Robert, appointed Assistant Superintendent of State Hospital for Inebriates at Knoxville, Iowa.

Young, Dr. Albert F., appointed Superintendent of Milwaukee County Hospital for the Insane at Wauwatosa, Wis.

Young, Dr. Frank B., Superintendent of State Hospital for Nervous Diseases at Little Rock, Ark., resigned November 31, 1915.

Zwick, Dr. Samuel A., Assistant Physician at Massillon State Hospital at Massillon, Ohio, resigned to enter private practice at Akron, Ohio.

SUBJECT INDEX

NOTE.—Abbreviations: [Rev] denotes a book review, [N] editorial note [Obit] an obituary.

American Medico-Psychological Association. Proceedings of the seventy-first annual meeting, 159.
Annual address. Publicity and the public mind, Douglas Southall Freeman, 17.
Answer, The, or the world as joy [Rev], W. J. Chidley, 588.
Aphasia, A further contribution to the study of, apropos of a case of verbal amnesia and alexia, Alfred Gordon, 649.
Appointments, resignations, etc., 422, 701.

Case, A, of retro-anterograde amnesia following gas poisoning, Philip Coombs Knapp, 259.
Catatonia, Focal lesions of the cortex of the left angular gyrus in two cases of late, E. E. Southard and M. M. Canavan, 553.
Clouston, Sir Thomas S. [N], 207.
Celebration of the twentieth anniversary of the founding of the Danvers, Mass., State Hospital laboratory on its modern basis [N], 583.
Continuous bath, Dangers of the, William A. White, 481.
Correlation, The, of clinical and serological findings in paresis and cerebrospinal syphilis, Ira A. Darling and Philip B. Newcomb, 449.
Criminal, The, imbecile: An analysis of three murder cases [Rev], Henry H. Goddard, 673.

Dangers of the continuous bath, William A. White, 481.
Defective delinquents, A survey of, under the care of the Massachusetts State Board of Insanity, A. Warren Stearns, 427.
Dementia præcox, manic depressive insanity and third generation syphilis, Optic neuritis and colored fields in the diagnosis of syphilis, neurasthenia, hyperthyroidism, Hayward G. Thomas, 59.
Dementia præcox, Thalamic gliosis in, Mary Elizabeth Morse, 103.

Eighth annual meeting of the National Committee for Mental Hygiene [N], 668.
Epilepsy, Sensory phenomena in, E. Murray Auer, 439.
Eugenic forces, A study of. Particularly of social conditions which bring about the segregation of neuropathic persons in special institutions, A. J. Rosanoff, 223.

Feeble-Minded citizens of Pennsylvania [N], 208.
Feeble-Mindedness: Its causes and consequences [Rev], Henry Herbert Goddard, 216.
Focal lesions of the cortex of the left angular gyrus in two cases of late catatonia, E. E. Southard and M. M. Canavan, 553.
Functions, The, of a psychologist in a hospital for the insane, Shepherd Ivory Franz, 457.
Further contribution, A, to the study of aphasia apropos of a case of verbal amnesia and alexia, Alfred Gordon, 649.

Games and exercises for mental defectives [Rev], Hilda A. Wrightson, 677.
Gas poisoning, A case of retro-anterograde amnesia following, Philip Coombs Knapp, 259.
Gratifying action of recent constitutional convention in New York [N], 393.

Half-Yearly Summary:
- Alabama, 403.
- Arkansas, 681.
- California, 403.
- Connecticut, 404, 681.
- Delaware, 681.
- District of Columbia, 681.
- Florida, 406, 681.
- Illinois, 406, 682.
- Indiana, 407, 683.
- Iowa, 408, 683.
- Louisiana, 409.
- Maryland, 409, 683.
- Massachusetts, 410, 684.
- Michigan, 684.
- Minnesota, 410.
- Mississippi, 685.
- Montana, 410.
- Nebraska, 410.
- New Hampshire, 411.
- New Jersey, 412, 685.
- New York, 414, 686.
- North Carolina, 418, 693.
- Ohio, 419, 694.
- Pennsylvania, 419, 696.
- Rhode Island, 697.
- South Carolina, 419, 697.
- South Dakota, 419.
- Tennessee, 419.
- Virginia, 420, 698.
- West Virginia, 420, 699.
- Canada, 421, 699.

History of the institutional care of the insane in the United States and Canada [N], 665.
Hospital "preparedness" in England [N], 671.
Hyperthyroidism, dementia præcox, manic depressive insanity and third generation syphilis, Optic neuritis and color fields in the diagnosis of syphilis, neurasthenia, Hayward G. Thomas, 59.

Imbecile, The psychoses of the high, Henry J. Berkley, 305.
Immigration, Some neglected phases of, in relation to insanity, A. J. Rosanoff, 45.
Index-Catalogue of the Surgeon-General's office, Vol. XX [Rev], 399.
Index of four hundred and fifty-eight post-mortems of the insane [Rev], Charles J. Swalm and Abraham L. Mann, 589.
Institution Libraries League [N], 214.
Institutional stasis, Henry C. Eyman, 331.
Intracranial injection, The, of salvarsanized serum, Drew M. Wardner, 643.

Laboratory work, The value of routine, in psychiatry, Paul G. Weston and Ira Darling, 325.

Man—An adaptive mechanism [Rev], George W. Crile, 675.

Manic depressive insanity and third generation syphilis, Optic neuritis and color fields in the diagnosis of syphilis, neurasthenia, hyperthyroidism, dementia præcox, Hayward G. Thomas, 59.

Mental examination of inmates of the Massachusetts state prison and study of the criminal insane at the Bridgewater, Mass., State Hospital [N], 397.

Neurasthenia, hyperthyroidism, dementia præcox, manic depressive insanity and third generation syphilis, Optic neuritis and color fields in the diagnosis of syphilis, Hayward G. Thomas, 59.

Nipple area, The sensibility of the, with reference to mental disease, Mildred E. Scheetz, 611.

Noble, Dr. Alfred Ira [Obit], 678.

Observations on the voice in tabes. A voice sign, Walter B. Swift, 349.

Occupation therapy [Rev], William R. Dunton, 400.

Occupation, The therapeutic and economic value of diversional, Britton D. Evans and Frank M. Mikels, 337.

On books and reading. Outline of a course of lectures for nurses in hospitals, Edith Kathleen Jones, 297.

On the relation of psychiatry to the state. Presidential address, S. E. Smith, 1.

Out-patient work, Recent extension of, in Massachusetts state hospitals for the insane and feeble-minded, L. Vernon Briggs and A. Warren Stearns, 35.

Optic neuritis and color fields in the diagnosis of syphilis, neurasthenia, hyperthyroidism, dementia præcox, manic depressive insanity and third generation syphilis, Hayward G. Thomas, 59.

Paraphrenia erotica. A contribution to the study of synthetic psychiatry, Morris J. Karpas, 291.

Paresis and cerebrospinal syphilis, The correlation of clinical and serological findings in, Ira A. Darling and Philip B. Newcomb, 449.

Paresis, The treatment of, and tabes dorsalis by salvarsanized serum, Henry A. Cotton 125, 355, 485.

Paresis, the treatment of (preliminary report), Britton D. Evans and Frederic H. Thorne, 623.

Pathological findings in the sympathetic nervous system in the psychoses, A. Myerson, 591.

Pennsylvania, Feeble-Minded citizens of [N], 208.

Presidential address. On the relation of psychiatry to the state, S. E. Smith, 1.

Proceedings of Societies:
  American Medico-Psychological Association. Proceedings of the seventy-first annual meeting, 159.

Psychologist, The functions of a, in a hospital for the insane, Shepherd Ivory Franz, 457.

Psychoses, The, of the high imbecile, Henry J. Berkley, 305.

Publicity and the public mind. Annual address, Douglas Southall Freeman, 17.

Recent extension of out-patient work in Massachusetts state hospitals for the insane and feeble-minded, L. Vernon Briggs and A. Warren Stearns, 35.

Recollections of a psychiatrist, James M. Keniston, 465.

Salvarsanized serum, The intracranial injection of, Drew M. Wardner, 643.

Salvarsanized serum, The treatment of paresis and tabes dorsalis by, Henry A. Cotton, 125, 355, 485.

Schwinn, Dr. George Hamilton [Obit], Alfred Glascock, 680.

Sensibility, The, of the nipple area with reference to mental disease, Mildred E. Scheetz, 611.

Sensory phenomena in epilepsy, E. Murray Auer, 439.

Seventy-first, The, annual meeting of the association [N], 212.

Seventy-second annual meeting, The, of the American Medico-Psychological Association [N], 581.

Sixteenth annual report of the State Board of Insanity of Massachusetts [Rev], 399.

Social maladjustment, A study of, H. B. Moyle, 275.

Some neglected phases of immigration in relation to insanity, A. J. Rosanoff, 45.

Some of the more recent problems connected with the state care of the insane, James V. May, 315.

State care of the insane, Some of the more recent problems connected with the, James V. May, 315.

Story, The, of Bethlehem Hospital from its foundation in 1247 [Rev], Edward Geoffrey O'Donoghue, 218.

Study, A, of eugenic forces. Particularly of the social conditions which bring about the segregation of neuropathic persons in special institutions, A. J. Rosanoff, 223.

Study, A, of social maladjustment, H. B. Moyle, 275.

Survey, A, of defective delinquents under the care of the Massachusetts State Board of Insanity, A. Warren Stearns, 427.

Sympathetic nervous system, Pathological findings in the, in the psychoses, A. Myerson, 591.

Syphilis as the etiological factor in the so-called functional neuroses and psychoses, Jau Don Ball, 93.

Syphilis, Optic neuritis and color fields in the diagnosis of, neurasthenia, hyperthyroidism, dementia præcox, manic depressive insanity and third generation syphilis, Hayward G. Thomas, 59.
Syphilis, The correlation of clinical and serological findings in paresis and cerebrospinal, Ira A. Darling and Philip B. Newcomb, 449.

Tabes dorsalis, The treatment of paresis and, by salvarsanized serum, Henry A. Cotton, 125, 355, 485.
Tabes, Observations on the voice in. A voice sign, Walter B. Swift, 349.
Testimony, A unique murder case with application of new law governing expert, James W. Putnam, 659.
Text-book on nervous diseases [Rev], G. Aschaffenburg, H. Curschmann, etc., 674.
Thalamic gliosis in dementia præcox, Mary Elizabeth Morse, 103.
Therapeutic, The, and economic value of diversional occupation, Britton D. Evans and Frank M. Mikels, 337.
Treatment, The, of paresis and tabes dorsalis by salvarsanized serum, Henry A. Cotton, 125, 355, 485.
Treatment, The, of paresis (preliminary report), Britton D. Evans and Frederic H. Thorne, 623.

Unique murder case, A, with application of new law governing expert testimony, James W. Putnam, 659.

Value, The, of routine laboratory work in psychiatry, Paul G. Weston and Ira Darling, 325.

Wassermann test, The, in practical psychiatry, Lawson G. Lowrey, 601.
Work, The, of our hands [Rev], Herbert J. Hall and Mertice M. C. Buck, 585.

AUTHORS' INDEX

Auer, E. Murray, Sensory phenomena in epilepsy, 439.

Ball, Jau Don, Syphilis as the etiological factor in the so-called functional neuroses and psychoses, 93.
Berkley, Henry J., The psychoses of the high imbecile, 305.
Briggs, L. Vernon, and A. Warren Stearns, Recent extension of out-patient work in Massachusetts state hospitals for the insane and feeble-minded, 35.

Canavan, M. M., E. E. Southard and, Focal lesions of the cortex of the left angular gyrus in two cases of late catatonia, 553.
Cotton, Henry A., The treatment of paresis and tabes dorsalis by salvarsanized serum, 125, 355, 485.

Darling, Ira, Paul G. Weston and, The value of routine laboratory work in psychiatry, 325.
Darling, Ira A., and Philip B. Newcomb, The correlation of clinical and serological findings in paresis and cerebrospinal syphilis, 449.

Eyman, Henry C., Institutional stasis, 331.
Evans, Britton D., and Frank M. Mikels, The therapeutic and economic value of diversional occupation, 337.
Evans, Britton D., and Frederic H. Thorne, The treatment of paresis (preliminary report), 623.

Franz, Shepherd Ivory, The functions of a psychologist in a hospital for the insane, 457.
Freeman, Douglas Southall. Annual address, Publicity and the public mind, 17.

Glascock, Alfred, Dr. George Hamilton Schwinn [Obit], 680.
Gordon, Alfred, A further contribution to the study of aphasia apropos of a case of varbal amnesia and alexia, 649.

Jones, Edith Kathleen, On books and reading. Outline of a course of lectures for nurses in hospitals, 297.

Karpas, Morris J., Paraphrenia erotica. A contribution to the study of synthetic psychiatry, 291.
Keniston, James M., Recollections of a psychiatrist, 465.
Knapp, Philip Coombs, A case of retro-anterograde amnesia following gas poisoning, 259.

Lowrey, Lawson G., The Wassermann test in practical psychiatry, 601.

May, James V., Some of the more recent problems connected with the state care of the insane, 315.
Mikels, Frank M., Britton D. Evans and, The therapeutic and economic value of diversional occupation, 337.
Moyle, H. B., A study of social maladjustment, 275.
Myerson, A., Pathological findings in the sympathetic nervous system in the psychoses, 591.

Newcomb, Philip B., Ira A. Darling and, The correlation of clinical and serological findings in paresis and cerebrospinal syphilis, 449.

Putnam, James W., A unique murder case with application of new law governing expert testimony, 659.

Rosanoff, A. J., A study of eugenic forces. Particularly of social conditions which bring about the segregation of neuropathic persons in special institutions, 223.
Rosanoff, A. J., Some neglected phases of immigration in relation to insanity, 45.

Scheetz, Mildred E., The sensibility of the nipple area with reference to mental disease, 611.
Smith, S. E., Presidential address. On the relation of psychiatry to the state, 1.
Southard, E. E., and M. M. Canavan, Focal lesions of the cortex of the left angular gyrus in two cases of late catatonia, 553.
Stearns, A. Warren, A survey of defective delinquents under the care of the Massachusetts State Board of Insanity, 427.
Stearns, A. Warren, L. Vernon Briggs and, Recent extension of out-patient work in Massachusetts state hospitals for the insane and feebleminded, 35.
Swift, Walter B., Observations on the voice in tabes. A voice sign, 349.

Thomas, Hayward G., Optic neuritis and color fields in the diagnosis of syphilis, neurasthenia, hyperthyroidism, dementia præcox, manic depressive insanity and third generation syphilis, 59.
Thorne, Frederic H., Britton D. Evans and, The treatment of paresis (preliminary report), 623.

Wardner, Drew M., The intracranial injection of salvarsanized serum, 643.
Weston, Paul G., and Ira Darling, The value of routine laboratory work in psychiatry, 325.
White, William A., Dangers of the continuous bath, 481.

LIST OF ILLUSTRATIONS

Optic Neuritis and the Color Fields in the Diagnosis of Syphilis, Neurasthenia, Hyperthyroidism, Dementia Præcox, Manic-Depressive Insanity, and Third Generation Syphilis.

Figs. 1-7, 61; Illustrations, I-II, 80; III-IV, 82; V-VI, 84; VI-VIII, 88; IX, 90.

The Treatment of Paresis and Tabes Dorsalis by Salvarsanized Serum.

Chart 1, 141; Chart, 2, 357; Chart 3, 359; Chart 4, 361; Case 3, Fig. 1, 364; Case 3, Fig. 2, 365; Chart 5, 367; Chart 6, 368-369; Chart 7, 373; Chart 8, 377; Chart 9, 379; Chart 10, 381; Chart 11, 383; Chart 12, 486-487; Chart 13, 491; Chart 14, 493; Case 8, Fig. 1, 494; Case 8, Fig. 2, 495; Chart 15, 496-497; Chart 16, 499; Chart 17, 501; Chart 18, 504; Chart 19, 508; Chart 20, 509; Chart 21, 510-511; Chart 23, 514-515; Chart 24, 517; Chart 25, 520-521; Chart 26, 522; Chart 27, 524-525; Chart 28, 527; Chart 29, 528; Chart 30, 530; Chart 32, 534; Chart 33, 535; Chart 34, 536; Chart 35, 538; Chart 37, 540; Chart 38, 542-543; Chart 36, 544; Chart 39, 546; Chart 40, 547.

Focal Lesions of the Cortex of the Left Angular Gyrus in Two Cases of Late Catatonia.

Plates I-II, 580.

Pathological Findings in the Sympathetic Nervous System in the Psychoses.

Fig. 1, 595; Fig. 2, 597; Plates III-V, 600.

The Treatment of Paresis (preliminary report).

Charts, 638-639.

A Further Contribution to the Study of Aphasia apropos of a Case of Verbal Amnesia and Alexia.

Plates VI-VII, 657.

RC
321
A52
v.72
cop.2
Biological
& Medical
Serials

The American journal of
psychiatry

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY

STORAGE